

# SHARP SERVICE MANUAL

CODE: 00ZEREUROSME

## SERVICE MANUAL FOR EURO FUNCTION

**ER-A440/A450**  
**ER-A460/A470**  
**ER-A490**  
**ER-A550S**  
**MODEL ER-A570/A610**

### CONTENTS

CHAPTER 1.	ABOUT FOR EURO FUNCTION.....	1
CHAPTER 2.	EURO FUNCTION-COMPATIBLE ROM TABLE.....	6
CHAPTER 3.	ROM REPLACEMENT.....	8
CHAPTER 4.	PROGRAMMING FOR EURO FUNCTION.....	9

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

**SHARP CORPORATION**

This document has been published to be used  
for after sales service only.  
The contents are subject to change without notice.

# CHAPTER 1. ABOUT FOR EURO FUNCTION

In this section, it is described about common EURO functions of ECR.

The DISPLAY/PRINT SAMPLE and PROGRAMMING JOB of each models are described at the other section.

## 1. CURRENCY EXCHANGE (Exn) RATE

The CURRENCY EXCHANGE RATE is changed from "4integer+4decimal" to "3integer+6decimal".

[Programming]

(PGM mode)

Currency Exchange Rate programming

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	1310	1310	1310	1310	1310

## 2. New CG of EURO Symbol

- EURO character code = 207

## 3. DOMESTIC CURRENCY SYMBOL

[Programming]

(SRV mode)

Domestic currency symbol programming

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	986	915-A	915-A	915-A	915-A

## 4. FOREIGN (EX1) CURRENCY SYMBOL

- EURO symbol character code is added into the Character Code Table.
- EURO symbol is used to print the EURO amount.
- ECR can use the EURO symbol character for the domestic currency symbol or exchange (EX1) currency symbol by below programming jobs.
- The selection of foreign currency symbol is supported only for EX1 (EURO) because the EURO is used at EX1 or Domestic currency.

(Notes)

- About Remote Printers and Slip printers (ER-01RP/02RP/03RP/04RP, EPSON TM-295/300/T85, INDATEC SLIP etc.):  
ECR cannot support to print EURO SYMBOL on Remote Printers and Slip Printers. The EURO symbol is not printed on them because they do not have EURO symbol themselves now.

[Programming]

(PGM mode)

Currency symbol for EX1 key programming

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	2334	2680-F	2680-F	2680-F	2680-F

## 5. FOREIGN CURRENCY DRAWER

[Programming]

(PGM mode)

Exchange drawer No. programming

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	2680	2680-E	2680-E	2680-E	2680-E

## 6. FOREIGN CURRENCY DRAWER OPEN function

This function is used to open the foreign currency drawer without any sales entry.

Case of Opening FOREIGN CURRENCY DRAWER

- (1) At the timing of issuing receipt after tendering foreign currency amount.
- (2) FOREIGN CURRENCY DRAWER OPEN function (THIS FUNCTION)
- (3) At the timing of issuing XZ REPORT (included CCD)

[Purpose]

This function is used for opening the foreign currency drawer when the change due of a transaction is given by foreign currency just after a transaction.

[Operation]

Key entry sequence

---- EXn ----

[Entry conditions]

Operating modes that allow the entry: REG and MGR modes (It is not allowed in the VOID mode).

This operation cannot be mixed with other entries such as sales entry within a transaction, and it cannot be mixed with the non-add code entry.

[Action]

This operation opens the foreign currency drawer.

This operation is executed only when the foreign currency drawer is set.

This operation does not have any counter and totalizer.

## 7. EX1 amount for TOTAL and CHANGE

- This function is selectable at PGM mode (PRINT or NOT).  
If "NOT" is selected, the total is printed as domestic currency. (Current spec)  
If "PRINT" is selected, TOTAL AMOUNT is printed both Domestic amount and EX1 amount (which is calculated by EX1 RATE).  
But, EX1 amount is not printed when SUBTOTAL VOID is executed.

[Programming]

(PGM mode)

Printing of EX1 amount for Total and Change

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	2616-X9-D	2680-A	2680-A	2680-A	2680-A

## 8. EX1 amount for TOTAL and TENDERING VP (NORMAL VP)

- This function is available only for VP of the finalized function (TOTAL VP, MEDIA VP) in Normal VP.  
It is not available for the VP (ITEM VP, RA/PO VP etc) except the finalized function.
- When the VP of the finalized function (TOTAL VP, MEDIA VP) is executed, it is printed "TOTAL amount" and "EXCHANGE1 amount" which is converted from the total amount.  
But, it does not print the EX1 amount at the VP (ITEM VP, RA/PO VP etc) without the finalized function.
- This function is selectable at PGM mode (PRINT or NOT).  
If "NOT" is selected, the VP format is same as the current spec.
- In case of "EX1 AMOUNT PRINT FOR TOTAL VP", Cashier/Clerk code and TIME are not printed at VP.

ER-A490/A570/A610:

- The CURRENCY DISCRIPTER is not printed on VP (because it does not have any space).
- FRENCH CHECK, EURO CHECK, ENGLISH CHECK, GERMAN CHECK:  
This function is not available for FRENCH CHECK, EURO CHECK, ENGLISH CHECK and GERMAN CHECK because they do not have the printing space on their format.  
They print the domestic amount only.  
(It means to keep the current specification.)

[Programming]

(PGM mode)

JOB#2680-B: Printing of EX1 amount for Total and Tendering VP

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	2616-X9-E	2680-B	2680-B	2680-B	2680-B

## 9. FOREIGN CURRENCY (EXn) TAB

- It is selectable the TAB position for each EXCHANGE.
- The programmed TAB position is used to print and display the exchange amount.  
It is not referred when the exchange amount is calculated by the exchange rate.  
The exchange rate must be programmed as the rate for lowest digit.

Ex)

- Domestic Currency TAB = 2, Foreign Currency TAB = 0  
In case of "Domestic Currency 1.00 is same as Foreign Currency 50", the exchange rate is 0.500000 (← 50 Foreign/100 Domestic).
- Domestic Currency TAB = 2, Foreign Currency TAB = 1  
In case of "Domestic Currency 1.00 is same as Foreign Currency 50.0", the exchange rate is 5.000000 (← 500 Foreign/100 Domestic).

[Programming]

(PGM mode)

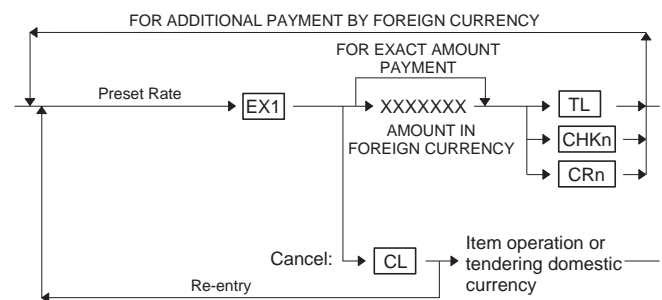
JOB#2330 : TAB for EXCHANGE keys

## 10. CHECK, CREDIT operation for EX1 EX1 Calculation method selection EX1 CHK+CR totalizer text

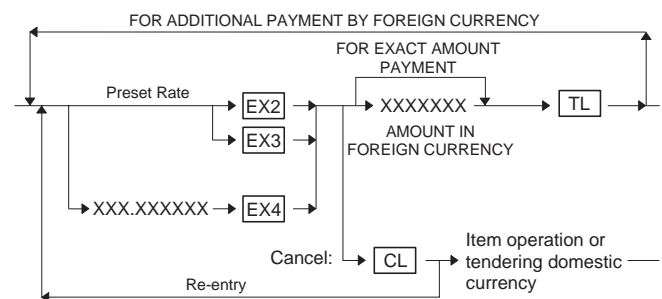
- This function is available only when either EURO currency or LOCAL currency is assigned to EX1.  
(It is available only while EURO status is (B) or (C).)
- The tendered amount of CHECK, CREDIT for EX1 is calculated to common totalizer (EXCHANGE1 CHECK+CREDIT SALES).
- The tendered amount of CHECK, CREDIT for EX1 is not sent to EFT terminal because it is not clear to be supported the entry of foreign currency (EURO) by EFT terminal.
- If this function is used under the EURO status (B) [EX1 as EURO], EX1 amount must be calculate by division for rate because it is decided that EURO exchange rate must be "1EURO=xx.xxxxxx LOCAL Currency".

[Operation]

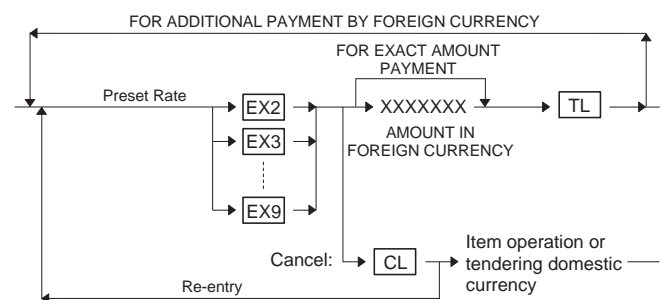
(1) EX1 (All models)



(2) EX2~ 4 (ER-A440/A450/A460/A470/A550S)



(3) EX2~ 9 (ER-A490/A570/A610/A650/A670)



[Programming]

(PGM mode)

CHECK, CREDIT operation for EX1

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	2616-X9-C	2680-C	2680-C	2680-C	2680-C

EX1 Calculation method

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	2616-X9-B	2680-D	2680-D	2680-D	2680-D

EX1 CHK+CR totalizer text

	A440/ A450	A460/ A470	A490	A550S	A570/ A610
JOB#	2314	2314	2314	2314	2314

## 11. CHANGING EURO FUNCTION

(Changing EURO Function)

X1/Z1 mode:

800 → ☐ → ☒ → X →

X: 1 = EURO STATUS (B)

2 = EURO STATUS (C)

3 = EURO STATUS (D)

About EURO STATUS are shown the following pages.

It is executing automatically to change from status (A) to status (B), (C), (D).

Selectable type is one of below 4 types.

And the selectable type is decided as below for each status.

CURRENT STATUS ↓	Selectable STATUS			
	(A)	(B)	(C)	(D)
(A)	—	×	×	×
(B)	—	—	×	×
(C)	—	—	—	×
(D)	—	—	—	—

Marked "x" is selectable

<Action>

It is executed some of below JOBS which is needed for each status.

- 1) Issue General Z1 report.
- 2) Issue General Z2 report.
- 3) Clear GT1/2/3.
- 4) Change PGM function "EX1 AMOUNT PRINTING FOR TOTAL AND CHANGE YES/NO".
- 5) Change PGM function "EX1 AMOUNT PRINTING FOR TOTAL VP YES/NO".
- 6) Change PGM function "EX1 CALCULATTION METHOD DIVISION/MULTIPLICATION".
- 7) Set "Domestic currency symbol" as EURO SYMBOL.
- 8) Set "Domestic TAB" as "2".
- 9) Set "EX1 currency symbol" as the suitable data.
- 10) Set "EX1 TAB" as the suitable data.

<Selecting type and its action>

Current status (A):

CURRENT STATUS (A)	Selected STATUS		
	(B)	(C)	(D)
1) General Z1 report	ISSUE	ISSUE	ISSUE
2) General Z2 report	ISSUE	ISSUE	ISSUE
3) GT1/2/3	—	CLEAR	CLAER
4) EX1 AMOUNT PRINTING FOR TOTAL AND CHANGE	"YES"	"YES"	"NO"
5) EX1 AMOUNT PRINTING FOR TOTAL VP	"YES"	"YES"	"NO"
6) EX1 CALCULATTION METHOD	"DIVISION"	"MULTI."	"MULTI."
7) Domestic currency symbol	—	[EURO]	[EURO]
8) Domestic TAB	—	"2"	"2"
9) EX1 currency symbol	[EURO]	The Current "Domestic currency symbol"	—
10) EX1 TAB	"2"	The Current "Domestic TAB"	—

Marked "—" is remaining the current data.

Current status (B):

CURRENT STATUS (B)	Selected STATUS		
		(C)	(D)
1) General Z1 report		ISSUE	ISSUE
2) General Z2 report		ISSUE	ISSUE
3) GT1/2/3		CLEAR	CLAER
4) EX1 AMOUNT PRINTING FOR TOTAL AND CHANGE		"YES"	"NO"
5) EX1 AMOUNT PRINTING FOR TOTAL VP		"YES"	"NO"
6) EX1 CALCULATTION METHOD		"MULTI."	"MULTI."
7) Domestic currency symbol		[EURO]	[EURO]
8) Domestic TAB		"2"	"2"
9) EX1 currency symbol		The Current "Domestic currency symbol"	[SPACE]
10) EX1 TAB		The Current "Domestic TAB"	—

Marked "—" is remaining the current data.

Current status (C):

CURRENT STATUS (C)	Selected STATUS		
			(D)
1) General Z1 report			ISSUE
2) General Z2 report			ISSUE
3) GT1/2/3			—
4) EX1 AMOUNT PRINTING FOR TOTAL AND CHANGE			"NO"
5) EX1 AMOUNT PRINTING FOR TOTAL VP			"NO"
6) EX1 CALCULATION METHOD			"MULTI."
7) Domestic currency symbol			[EURO]
8) Domestic TAB			"2"
9) EX1 currency symbol			[SPACE]
10) EX1 TAB			—

Marked "—" is remaining the current data.

(Notes)

- This JOB cannot set below additional EURO function automatically.  
Below items must be set by each PGM JOB after this job.

(1) EX1 RATE

(2) "CHECK, CREDIT operation for EX1      Yes/No"

- INLINE SYSTEM:

This job can be executed only at INLINE MASTER when the system is closed ("CLOSED STORE") because the currency unit must be changed for all machines at same time. And the "OPEN STORE" must be executed after completed this job because the currency is mixed in the system if this job (CHANGEING EURO) was not completed at some machine.

In this table, the local currency is described as DM. (The printing sample is a general format.)

STATUS		(A)	(B)	(C)	(D)
Handled currency of ECR	ITEMS (Goods)	DM	DM	EURO	EURO
	Tendering	DM Foreign [by EXn]	DM EURO [by EX1] Foreign [by EX2~ ]	EURO DM [by EX1] Foreign [by EX2~ ]	EURO Foreign [by EXn]
	Change	DM	DM	EURO (DM) [judged by cashier]	EURO
Display Currency	ITEMS	DM	DM	EURO	EURO
	TOTAL, CHANGE	DM	DM	EURO	EURO
Printing currency on Receipt	ITEMS	DM	DM	EURO	EURO
	TOTAL, CHANGE	DM	DM (EURO)	EURO (DM)	EURO
Printing currency on VP	ITEMS	DM	DM	EURO	EURO
	TOTAL	DM	DM (EURO)	EURO (DM)	EURO
EX1 Calculation method		Multiplication (Amount × Rate)	Division (Amount/Rate)	Multiplication (Amount × Rate)	Multiplication (Amount × Rate)
Rounding method of EXn	Domestic → Foreign	UP	4 (DOWN)/5 (UP)	4 (DOWN)/5 (UP)	4 (DOWN)/5 (UP)
	Foreign → Domestic	Down	4 (DOWN)/5 (UP)	4 (DOWN)/5 (UP)	4 (DOWN)/5 (UP)
Receipt Sample (Tendered by DM) ["c" = "EURO SYMBOL"]  (It is a standard receipt. It may not be different from a receipt of this machine.)		DEPT01 *1.00 DEPT02 *2.00 *** TOTAL *3.00 CASH *5.00 CHANGE *2.00	DEPT01 *1.00 DEPT02 *2.00 *** TOTAL *3.00 c1.57 CASH *5.00 CHANGE *2.00 c1.04	DEPT01 c0.52 DEPT02 c1.04 *** TOTAL c1.56 3.00 EXCH1 1.917620 3.00 CASH 4.00 CHANGE c0.52 1.00	
Receipt Sample (Tendered by EURO) ["c"="EURO SYMBOL"]  (It is a standard receipt. It may not be different from a receipt of this machine.)			DEPT01 *1.00 DEPT02 *2.00 *** TOTAL *3.00 c1.57 EXCH1 1.917620 c1.57 CHECK c2.00 CHANGE *0.82 c0.43	DEPT01 c0.52 DEPT02 c1.04 *** TOTAL c1.56 3.00 CASH c2.00 CHANGE c0.44 0.84	DEPT01 c0.52 DEPT02 c1.04 *** TOTAL c1.56 CASH c2.00 CHANGE c0.44
Currency of Report (X/Z)		DM	DM	EURO	EURO
Currency in DRAWER	Domestic Drawer	DM	DM	EURO	EURO
	Foreign Drawer	Foreign	EURO Foreign	DM Foreign	Foreign

#### NOTES:

##### <About RAM data compatibility>

ECR has the RAM data compatibility between current (NON EURO) machine and new (EURO) machine at the same model under below condition.

- The ONLINE system has the new TABLE NO. for uploading/downloading the new programming data.
- INLINE system:  
The downloading of the new programming data is executed by using the current PGM downloading jobs.

##### <OTHERS>

- The guidance message function of PGM JOBS (A460/A470/A490) ER-A460/A470/A490 has the guidance message function. But, they do not support about new PGM JOB.

## CHAPTER 2. EURO FUNCTION-COMPATIBLE ROM TABLE

To perform Euro function, the conventional ROM needs to be changed to the following new ROM.

### 1. ER-A440

ROM NAME	ROM			PWB UNIT		Effective time
	OLD	NEW (For EURO function)	LOCATION No.	PWB NAME	PWB PARTS CODE	
STANDARD ROM	VHI27020RAZ1A	VHI27020RAZ1B	IC7	MAIN PWB	CPWBN7551BH04	Jul. '98
OPTION ROM	—	—	—	—	—	—

### 2. ER-A450 (The model ER-Euro has a new ROM already installed.)

ROM NAME	ROM			PWB UNIT		Effective time
	OLD	NEW (For EURO function)	LOCATION No.	PWB NAME	PWB PARTS CODE	
STANDARD ROM	—	VHI27040RBK1A	IC13	MAIN PWB	CPWBX9554BH02	Jul. '98
OPTION ROM	—	—	—	—	—	—

### 3. ER-A460/A470

ROM NAME	ROM			PWB UNIT		Effective time
	OLD	NEW (For EURO function)	LOCATION No.	PWB NAME	PWB PARTS CODE	
STANDARD ROM	VHI27020RAU1C	VHI27020RAU1D	IC4	MAIN PWB	CPWBN7457BH02	Sep. '98
OPTION ROM (ER-A46R1)	VHI27010RAP1B	VHI27010RAP1D	IC101	MEMORY PWB	CPWBN7458BH01	

### 4. ER-A490

ROM NAME	ROM			PWB UNIT		Effective time
	OLD	NEW (For EURO function)	LOCATION No.	PWB NAME	PWB PARTS CODE	
STANDARD ROM	VHI27040RAV1C	VHI27040RAV1D	IC11	MAIN PWB	CPWBX7466BH03	Sep. '98
OPTION ROM (ER-A49R1)	VHI27010RAS1B	VHI27010RAS1D	IC15	MEMORY PWB	CPWBN7469BH01	Sep. '98

### 5. ER-A550S (The ROM ER-A55R1 that was optionally available has been changed to standard equipment.)

ROM NAME	ROM			PWB UNIT		Effective time
	OLD	NEW (For EURO function)	LOCATION No.	PWB NAME	PWB PARTS CODE	
STANDARD ROM	VHI27010RAF1D	VHI27010RAF1F	IC5 (ROM1)	MAIN PWB	CPWBN7287BH02	Sep. '98
OPTION ROM (ER-A55R1)	VHI27010RAI1A	VHI27010RAI1F	IC4 (ROM2)			

## 6. ER-A570

ROM NAME	ROM			PWB UNIT		Effective time
	OLD	NEW (For EURO function)	LOCATION No.	PWB NAME	PWB PARTS CODE	
STANDARD ROM	VHI27040RAJ1E	VHI27040RAJ1F	IC5 (ROM1)	MAIN PWB	CPWBN7433BH01	Sep. '98
OPTION ROM (ER-A57R1)	VHI27020RAP1C	VHI27020RAP1F	IC7 (ROM2)			

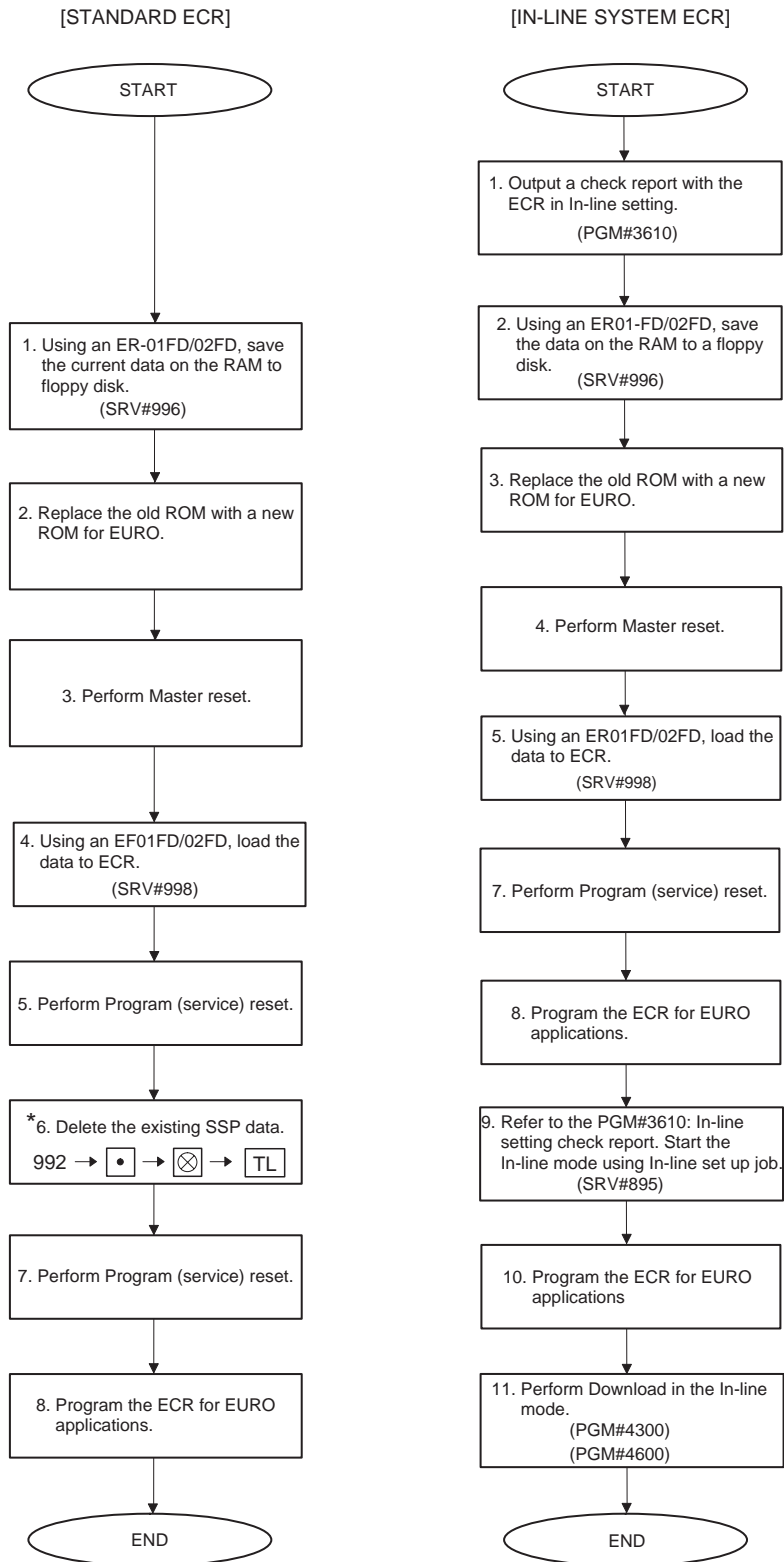
## 7. ER-A610

ROM NAME	ROM			PWB UNIT		Effective time
	OLD	NEW (For EURO function)	LOCATION No.	PWB NAME	PWB PARTS CODE	
STANDARD ROM	VHI27040RAI1E	VHI27040RAI1F	IC9 (ROM1)	MAIN PWB	CPWBX7430BH01	Sep. '98
OPTION ROM (ER-A61R1)	VHI27020RAN1C	VHI27020RAN1F	IC11 (ROM2)			



## CHAPTER 3. ROM REPLACEMENT

Before trying to replace the ROM in the machine now available on the market, be sure to back up the data.



\* The SSP data for an old version ROM is included in the new version ROM.

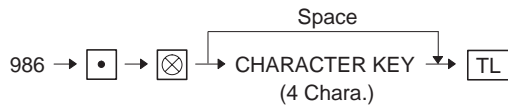
# CHAPTER 4. PROGRAMMING FOR EURO FUNCTION

## 1. ER-A440/A450

### 1-1. SERVICE MODE PROGRAMMING

#### 1) Domestic currency symbol programming

[JOB#986] MRS="\_\_\_\_\*"

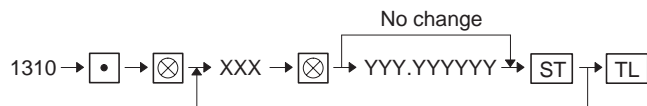


\* EURO character code = 207

### 1-2. PGM MODE PROGRAMMING

#### 1) Programming of Exchange (EURO) rate

[JOB#1310] MRS=0



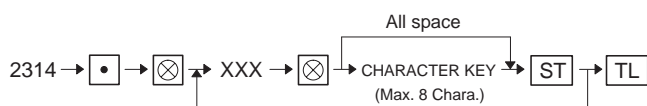
XXX: Function No.

YYY.YYYYYY: Exchange (EURO) rate

Function No.	Function	Entry range	Remarks
52	Exchange 1	0 to 999.999999 (3 id + 6 dd)	Exchange (EURO) rate
53	Exchange 2		
54	Exchange 3		

#### 2) Programming of text for Exchange keys

[JOB#2314]

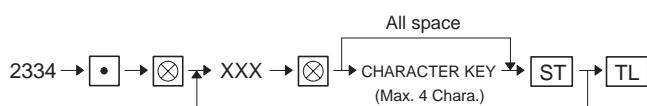


XXX: Function No.

Function No.	Function	Default (MRS)
140	EXCHANGE1 CHECK+CREDIT SALES	EX1CH+CR
141	DOMESTIC CURRENCY FOR EX1 CH+CR	DOM.CUR1

#### 3) Programming of currency symbol for Exchange keys

[JOB#2334]



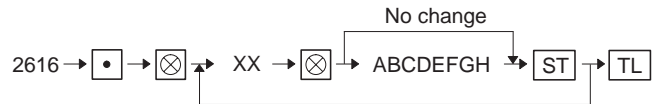
\* EURO character code = 207

XXX: Function No.

Function No.	Function	Default (MRS)
52	Exchange 1	"SPACE"
53	Exchange 2	"SPACE"
54	Exchange 3	"SPACE"
55	Exchange 4	"SPACE"

#### 4) Programming of EURO functions

[JOB#2616-X9] MRS=00000000



X:9

A: Not used (Fixed at "0")

B:

EXCHANGE1 Calculation method	B
Multiplication	0
Division	1

C:

CHECK, CREDIT operation for EX1	C
No	0
Yes	1

D:

Printing of EX1 amount for Total and Change	D
No	0
Yes	1

E:

Printing of EX1 amount for Total VP	E
No	0
Yes	1

F, G: Not used (Fixed at "00")

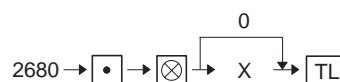
H (For ER-A440): Not used (Fixed at "0")

H (For ER-A450):

Footer graphic LOGO printing at the end of receipt	H
No	0
Yes	1

#### 5) Programming of Exchange drawer

[JOB#2680] MRS=0

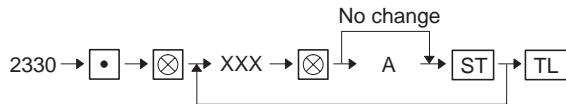


X:

EXCHANGE DRAWER No.	X
Non	0
#1	1
#2	2

## 6) Programming of Tablation for Exchange keys

[JOB#2330] MRS = 2



XXX: Function No.

Function No.	Function
52	Exchange 1
53	Exchange 2
54	Exchange 3
55	Exchange 4

A: TAB

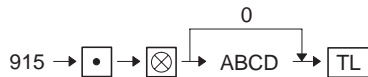
TAB	A
0	0
0.0	1
0.00	2
0.000	3

## 2. ER-A460/A470

### 1-1. SERVICE MODE PROGRAMMING

#### Domestic currency symbol programming

[JOB#915] MRS=1020



#915-A: 1. Amount symbol

1. Amount symbol	915-A
"\$"	0
"*"	1
"_"	2
"EURO SYMBOL"	3

★

#915-B: Not used (Fixed at "0")

#915-C: 1. Paper near end check

2. ST(-), ST(%) as many times needed/operation only once

1. Paper near end check	2. ST(-), ST(%) as many times needed/operation only once	915-B
Yes	Unlimited	0
	Once only	2
No	Unlimited	4
	Once only	6

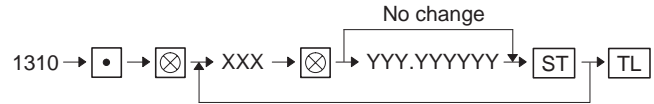
★

#915-D: Not used (Fixed at "0")

## 1-2. PGM MODE PROGRAMMING

### 1) Programming of Exchange (EURO) rate

[JOB#1310] MRS=0



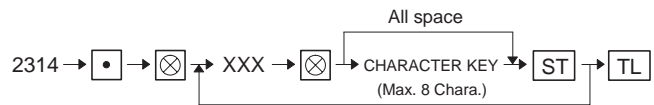
XXX: Function No.

YYY.YYYYYY: Exchange (EURO) rate

Function No.	Function	Entry range	Remarks
51	Exchange 1	0 to 999.999999 (3 id + 6 dd)	Exchange (EURO) rate
52	Exchange 2		
53	Exchange 3		

### 2) Programming of text for Exchange keys

[JOB#2314]

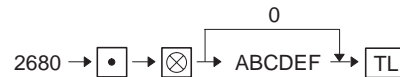


XXX: Function No.

Function No.	Function	Default (MRS)
127	EXCHANGE1 CHECK+CREDIT SALES	EX1CH+CR
128	DOMESTIC CURRENCY FOR EX1 CH+CR	DOM.CUR1

### 3) Programming of EURO functions

[JOB#2680] MRS=000002



A:

Printing of EX1 amount for Total and Change	A
No	0
Yes	1

B:

Printing of EX1 amount for Total VP	B
No	0
Yes	1

C:

CHECK, CREDIT operation for EX1	C
No	0
Yes	1

D:

EXCHANGE1 Calculation method	D
Multiplication	0
Division	1

E:

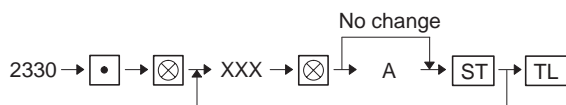
EXCHANGE DRAWER No.	E
Non	0
#1	1
#2	2

F:

Currency symbol for EX1 key	F
"\$"	0
"**"	1
"_"	2
"EURO SYMBOL"	3

#### 4) Programming of Tablation for Exchange keys

[JOB#2330] MRS = 2



XXX: Function No.

Function No.	Function
51	Exchange 1
52	Exchange 2
53	Exchange 3
54	Exchange 4

A: TAB

TAB	A
0	0
0.0	1
0.00	2
0.000	3

### 3. ER-A490

#### 1-1. SERVICE MODE PROGRAMMING

##### 1) Domestic currency symbol programming

[JOB#915] MRS=1020



#915-A: 1. Printing of total amount at addition+single item receipt

2. Amount symbol

1. Printing of total amount at addition+single item receipt	2. Amount symbol	915-A
Yes	"\$"	0
	"*"	1
	"_"	2
	"EURO SYMBOL"	3
No	"\$"	4
	"*"	5
	"_"	6
	"EURO SYMBOL"	7

#915-B: 1. Printing of refund on the S/D receipt

2. PO system

1. Printing of refund on the S/D receipt	2. PO system	915-B
No	Mixed entry	0
	Cash only entry	1
Yes	Mixed entry	4
	Cash only entry	5

#915-C: 1. ST(-), ST(%) as many times needed/operation only once

2. RA system

1. ST(-), ST(%) as many times needed/operation only once	2. RA system	915-C
Unlimited	Mixed entry	0
	Cash only entry	2
Once only	Mixed entry	4
	Cash only entry	6

#915-D: 1. S/D receipts are issued by the number of a multiplier

2. Incrementing the consecutive number for each item in S/D+Addition receipt

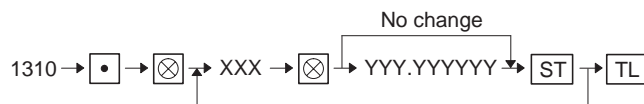
3. Printing on S/D receipt for multiplication entry

1. S/D receipts are issued by the number of a multiplier	2. Incrementing the consecutive number for each item in S/D+Addition receipt	3. Printing on S/D receipt for multiplication entry	915-C
No	No	One line	0
		Normal	1
	Yes	One line	2
		Normal	3
Yes	No	One line	4
		Normal	5
	Yes	One line	6
		Normal	7

#### 1-2. PGM MODE PROGRAMMING

##### 1) Programming of Exchange (EURO) rate

[JOB#1310] MRS=0



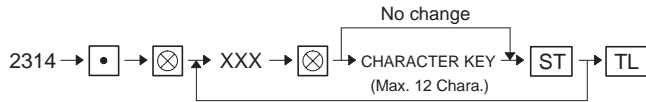
XXX: Function No.

YYY.YYYYYY: Exchange (EURO) rate

Function No.	Function	Entry range	Remarks
60	Exchange 1	0 to 999.999999 (3 id + 6 dd)	Exchange (EURO) rate
61	Exchange 2		
62	Exchange 3		
63	Exchange 4		
64	Exchange 5		
65	Exchange 6		
66	Exchange 7		
67	Exchange 8		
68	Exchange 9		

## 2) Programming of text for Exchange keys

[JOB#2314]



XXX: Function No.

Function No.	Function	Default (MRS)
276	EXCHANGE1 CHECK+CREDIT SALES	EX1CH+CR
277	DOMESTIC CURRENCY FOR EX1 CH+CR	DOM.CUR1

## 3) Programming of EURO functions

[JOB#2680] MRS=000002



A:

Printing of EX1 amount for Total and Change	A
No	0
Yes	1

B:

Printing of EX1 amount for Total VP	B
No	0
Yes	1

C:

CHECK, CREDIT operation for EX1	C
No	0
Yes	1

If "CHECK, CREDIT operation for EX1" is select at "Yes", it needs a few seconds until terminating this job because ER-A490 creates new records which is used by new function in the transaction and cashier files at this JOB. It may be occurred the MEMORY FULL error. In this case, it must be change the file allocation (ex. decrease PLU records) at SRV mode programming (JOB#971).

D:

EXCHANGE1 Calculation method	D
Multiplication	0
Division	1

E:

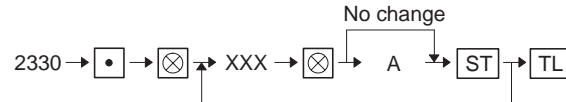
EXCHANGE DRAWER No.	E
Non	0
#1	1
#2	2

F:

Currency symbol for EX1 key	F
"\$"	0
"*"	1
"_"	2
"EURO SYMBOL"	3

## 4) Programming of Tablation for Exchange keys

[JOB#2330] MRS = 2 (Same as SRV#902-D)



XXX: Function No.

Function No.	Function
60	Exchange 1
61	Exchange 2
62	Exchange 3
63	Exchange 4
64	Exchange 5
65	Exchange 6
66	Exchange 7
67	Exchange 8
68	Exchange 9

A: TAB

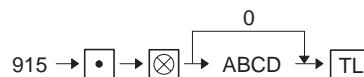
TAB	A
0	0
0.0	1
0.00	2
0.000	3

## 4. ER-A550S

### 1-1. SERVICE MODE PROGRAMMING

#### 1) Domestic currency symbol programming

[JOB#915] MRS=1020



#915-A: 1. Amount symbol

1. Amount symbol	915-A
"\$"	0
"*"	1
"_"	2
"EURO SYMBOL"	3

#915-B: Not used (Fixed at "0")

#915-C: 1. ST(-), ST(%) as many times needed/operation only once

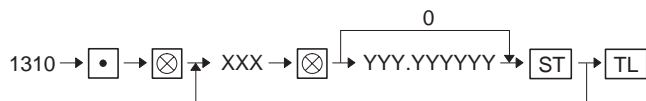
1. ST(-),ST(%) as many times needed/operation only once	915-B
Unlimited	0
Once only	2

#915-D: Not used (Fixed at "0")

## 1-2. PGM MODE PROGRAMMING

### 1) Programming of Exchange (EURO) rate

[JOB#1310] MRS=0



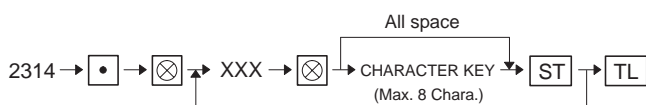
XXX: Function No.

YYY.YYYYYY: Exchange (EURO) rate

Function No.	Function	Entry range	Remarks
51	Exchange 1	0 to 999.999999 (3 id + 6 dd)	Exchange (EURO) rate
52	Exchange 2		
53	Exchange 3		

### 2) Programming of text for Exchange keys

[JOB#2314]

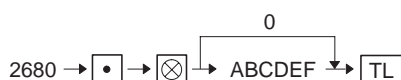


XXX: Function No.

Function No.	Function	Default (MRS)
119	EXCHANGE1 CHECK+CREDIT SALES	EX1CH+CR
120	DOMESTIC CURRENCY FOR EX1 CH+CR	DOM.CUR1

### 3) Programming of EURO functions

[JOB#2680] MRS=000002



A:

Printing of EX1 amount for Total and Change	A
No	0
Yes	1

B:

Printing of EX1 amount for Total VP	B
No	0
Yes	1

C:

CHECK, CREDIT operation for EX1	C
No	0
Yes	1

D:

EXCHANGE1 Calculation method	D
Multiplication	0
Division	1

E:

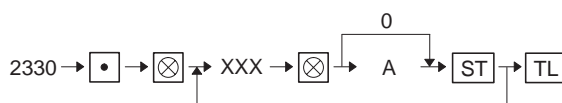
EXCHANGE DRAWER No.	E
Non	0
#1	1
#2	2

F:

Currency symbol for EX1 key	F
"\$"	0
"*"	1
"_"	2
"EURO SYMBOL"	3

### 4) Programming of Tablation for Exchange keys

[JOB#2330] MRS = 2



XXX: Function No.

Function No.	Function
51	Exchange 1
52	Exchange 2
53	Exchange 3
54	Exchange 4

A: TAB

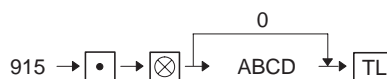
TAB	A
0	0
0.0	1
0.00	2
0.000	3

## 5. ER-A570/A610

### 1-1. SERVICE MODE PROGRAMMING

#### 1) Domestic currency symbol programming

[JOB#915] MRS=1020



#915-A: 1. Amount symbol

1. Amount symbol	915-A
"\$"	0
"*"	1
"_"	2
"EURO SYMBOL"	3

★

#915-B: 1. PO system

1. PO system	915-B
Mixed entry	0
Cash only entry	1

★

#915-C: 1. ST(-), ST(%) as many times needed/operation only once

2. RA system

1. ST(-), ST(%) as many times needed/operation only once	2. RA system	915-C
Unlimited	Mixed entry	0
	Cash only entry	1
Once only	Mixed entry	2
	Cash only entry	3

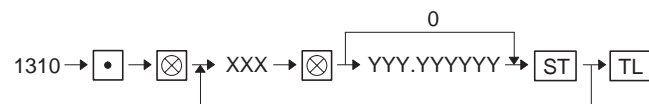
★

#915-D: Not used (Fixed at "0")

## 1-2. PGM MODE PROGRAMMING

### 1) Programming of Exchange (EURO) rate

[JOB#1310] MRS=0



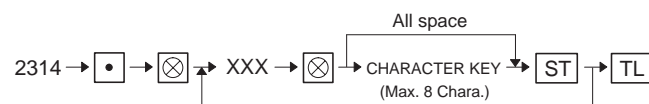
XXX: Function No.

YYY.YYYYYY: Exchange (EURO) rate

Function No.	Function	Entry range	Remarks
68	Exchange 1	0 to 999.999999 (3 id + 6 dd)	Exchange (EURO) rate
69	Exchange 2		
70	Exchange 3		
71	Exchange 4		
72	Exchange 5		
73	Exchange 6		
74	Exchange 7		
75	Exchange 8		
76	Exchange 9		

### 2) Programming of text for Exchange keys

[JOB#2314]



XXX: Function No.

<For ER-A570/610>

Function No.	Function	Default (MRS)
305	EXCHANGE1 CHECK+CREDIT SALES	EX1CH+CR
306	DOMESTIC CURRENCY FOR EX1 CH+CR	DOM.CUR1

### 3) Programming of EURO functions

[JOB#2680] MRS=000002



A:

Printing of EX1 amount for Total and Change	A
No	0
Yes	1

B:

Printing of EX1 amount for Total VP	B
No	0
Yes	1

C:

CHECK, CREDIT operation for EX1	C
No	0
Yes	1

D:

EXCHANGE1 Calculation method	D
Multiplication	0
Division	1

E:

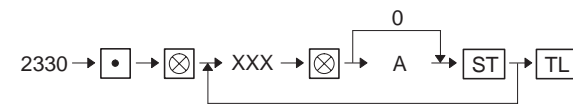
EXCHANGE DRAWER No.	E
Non	0
#1	1
#2	2

F:

Currency symbol for EX1 key	F
"\$"	0
"*"	1
"_"	2
"EURO SYMBOL"	3

### 4) Programming of Tablation for Exchange keys

[JOB#2330] MRS = 2



XXX: Function No.

Function No.	Function
68	Exchange 1
69	Exchange 2
70	Exchange 3
71	Exchange 4
72	Exchange 5
73	Exchange 6
74	Exchange 7
75	Exchange 8
76	Exchange 9

A: TAB

TAB	A
0	0
0.0	1
0.00	2
0.000	3

# SHARP SERVICE MANUAL

CODE: 00ZERA44VOSME

## ER-A440/A450 ONLINE COMMUNICATION FUNCTION



### ELECTRONIC CASH REGISTER

## ER-A440 MODEL ER-A450

(For "V" version)

#### CONTENTS

CHAPTER 1. OVERVIEW .....	1
CHAPTER 2. SYSTEM CONFIGURATION .....	1
CHAPTER 3. SPECIFICATIONS OF RS-232 INTERFACE .....	2
CHAPTER 4. SIGNAL CONNECTION DIAGRAM .....	2
CHAPTER 5. RS-232 PROTOCOL .....	4
CHAPTER 6. CONTROL SIGNAL SEQUENCE .....	11
CHAPTER 7. DATA BLOCK FORMAT .....	14
CHAPTER 8. ONLINE APPLICATION .....	14

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

**SHARP CORPORATION**

This document has been published to be used  
for after sales service only.  
The contents are subject to change without notice.



# CHAPTER 1. OVERVIEW

## 1. GENERAL

This is a specification of the on-line data communication via RS-232C interface of the ER-A440/A450.

It enables the ER-A440/A450 to perform on-line communication.

For on-line data communication a ER-A440/A450 can be connected to a host computer. Also, their connection can be made via modems.

We support mainly the following functions.

### a) The function of ONLINE

- 1) Down load of ECR data (ECR ← PC)
- 2) Up load of ECR data (ECR → PC)
- 3) RJE (Remote job entry) function (ECR ← PC)
- 4) ELECTRONIC MAIL function (ECR ← PC)

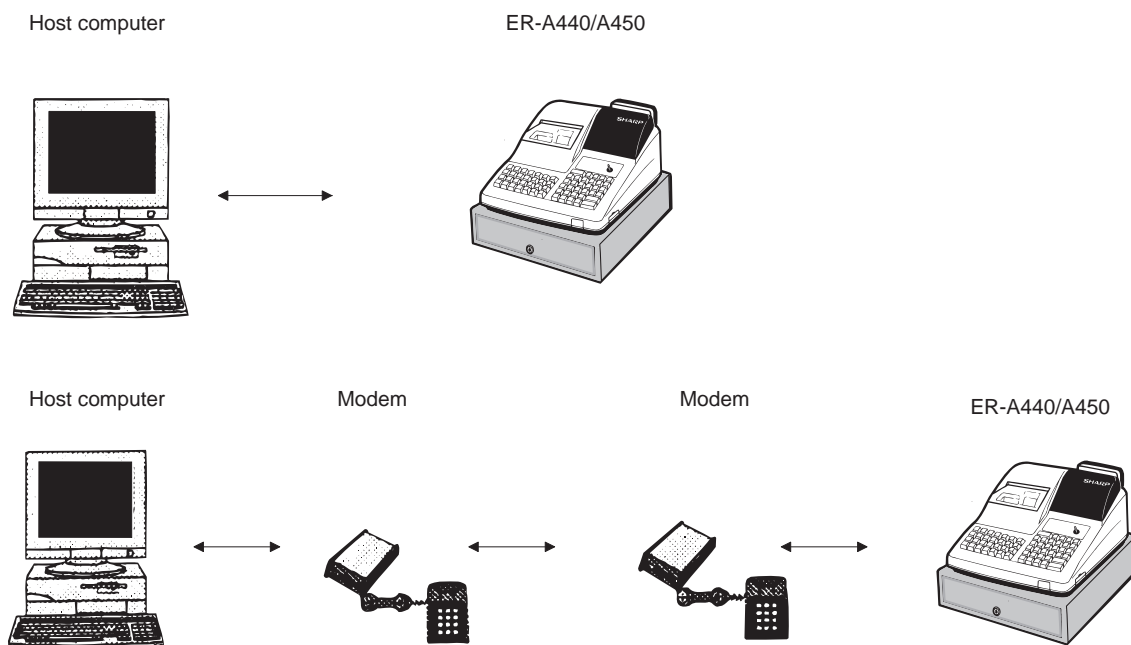
# CHAPTER 2. SYSTEM CONFIGURATION

## 1. GENERAL

Online data communication is allowed only when RS232C channel presets at PGM2 mode.

## 2. Online data communication

### (a) Direct connection

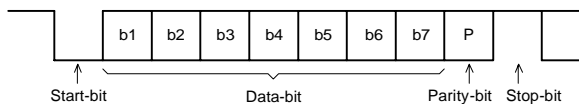


\* The picture of ECR is shown the ordinary ECR.  
(It may not be same design as ER-A440/A450.)

## CHAPTER 3. SPECIFICATIONS OF RS-232 INTERFACE

### 1. Online interface

- a) Interface : RS-232
- b) Duplex type : Half-duplex / Full-duplex
- c) Line configuration : Direct connection/Modem connection
- d) Data rate : 19200, 9600, 4800, 2400, 1200, 600 and 300 bps (Programmable)
- e) Synchronizing mode : Asynchronous
- f) Parity check : Vertical parity check (odd)
- g) Code : ASCII
- h) Bit sequence : LSB first
- i) Data format : 1 start bit + 7 data bits + 1 parity + 1 stop bit



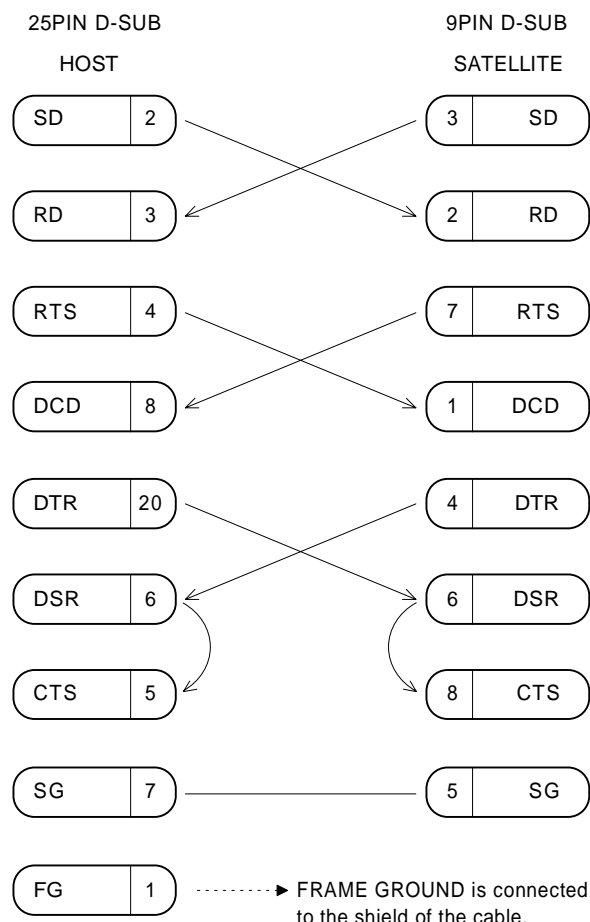
- j) Protocol : Polling/selecting (Simple procedure)
- k) Transmission line :
  - Cable : Shielded cable
  - Connector : D-sub 9 pin (female type) connector (ECR side) Inch pitch (4-40 UNC) lock screw
  - Connector cover : Shielded cover

The table shows the relationship between the data rate and the recommended cable length.

Data rate	Recommended cable length
19,200 bps	3.75 meters
9,600 bps	7.5 meters
4,800 bps	15 meters
2,400 bps	30 meters
1,200 bps	60 meters

## CHAPTER 4. SIGNAL CONNECTION DIAGRAM

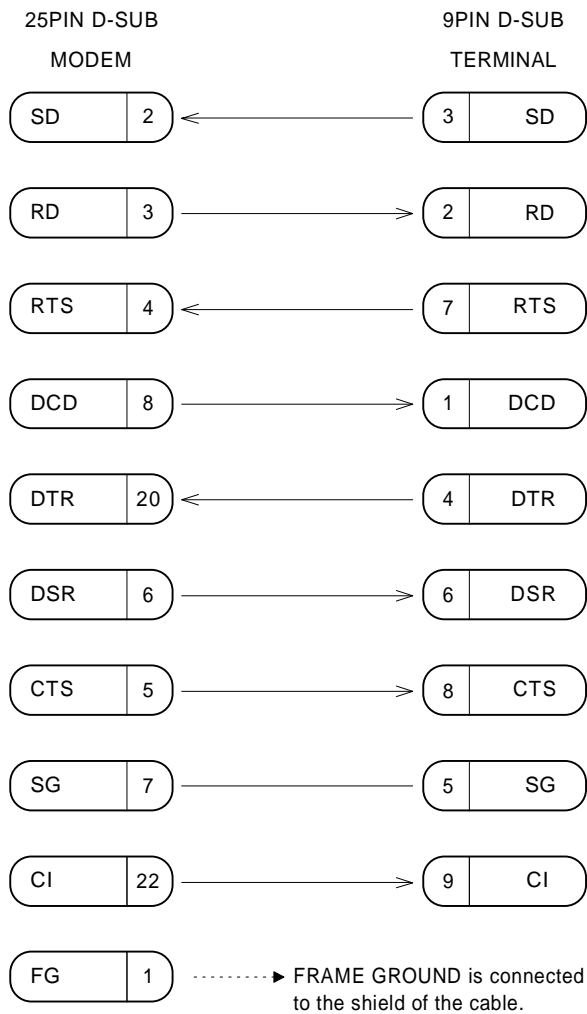
### 1. Connection between the master (Host) and Satellite



SD : TRANSMITTED DATA  
 RD : RECEIVED DATA  
 DTR : DATA TERMINAL READY  
 DSR : DATA SET READY  
 RTS : REQUEST TO SEND  
 DCD : DATA CARRIER DETECTOR  
 CTS : CLEAR TO SEND  
 FG : FRAME GROUND

\* If the connector of Host side is "9 PIN D-SUB", the pin number is same as Satellite side.

## 2. Connection between the terminal and MODEM

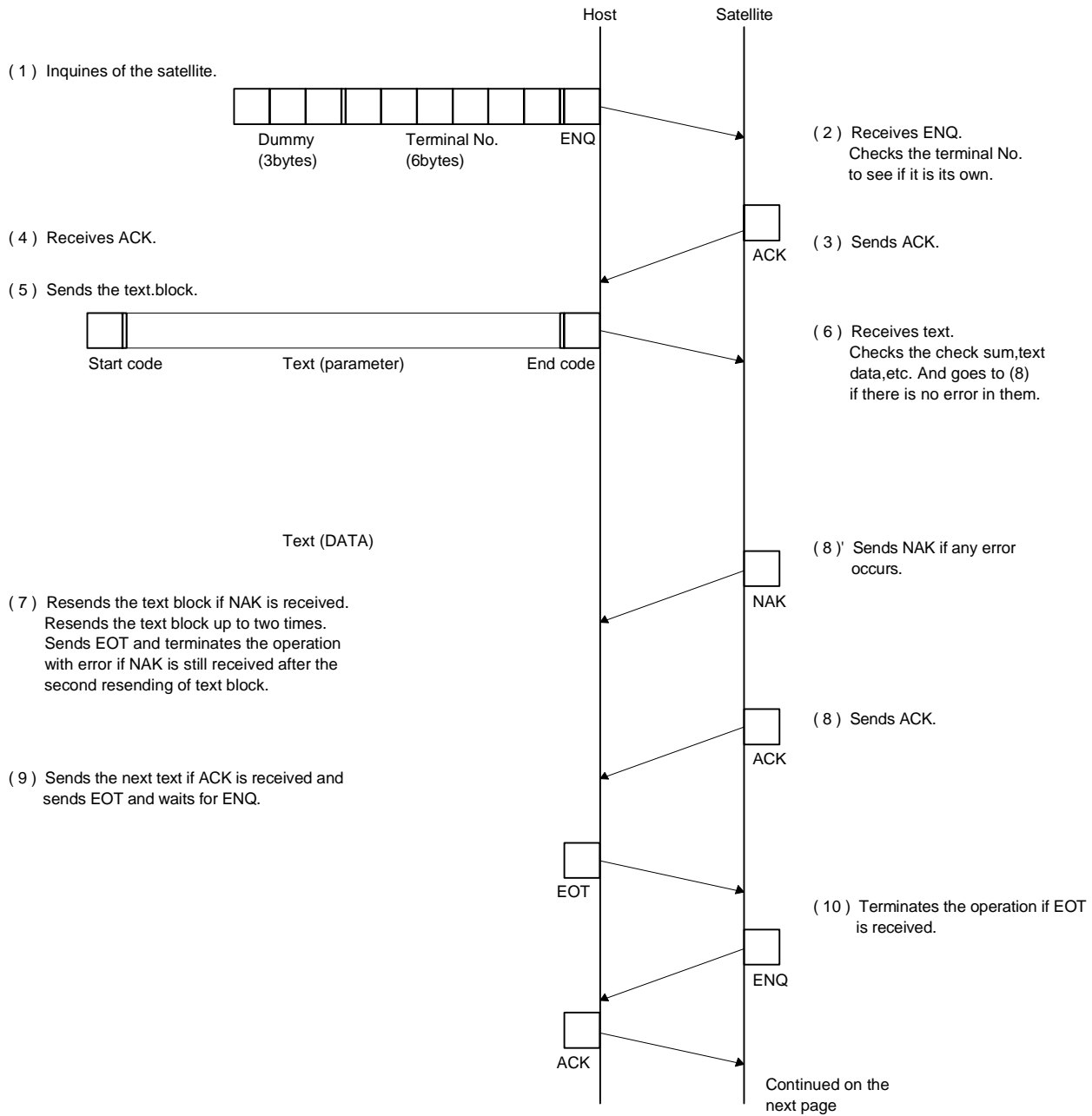


SD : TRANSMITTED DATA  
 RD : RECEIVED DATA  
 DTR: DATA TERMINAL READY  
 DSR: DATA SET READY  
 RTS: REQUEST TO SEND  
 DCD: DATA CARRIER DETECTOR  
 CTS: CLEAR TO SEND  
 CI : CALLING INDICATOR  
 FG : FRAME GROUND

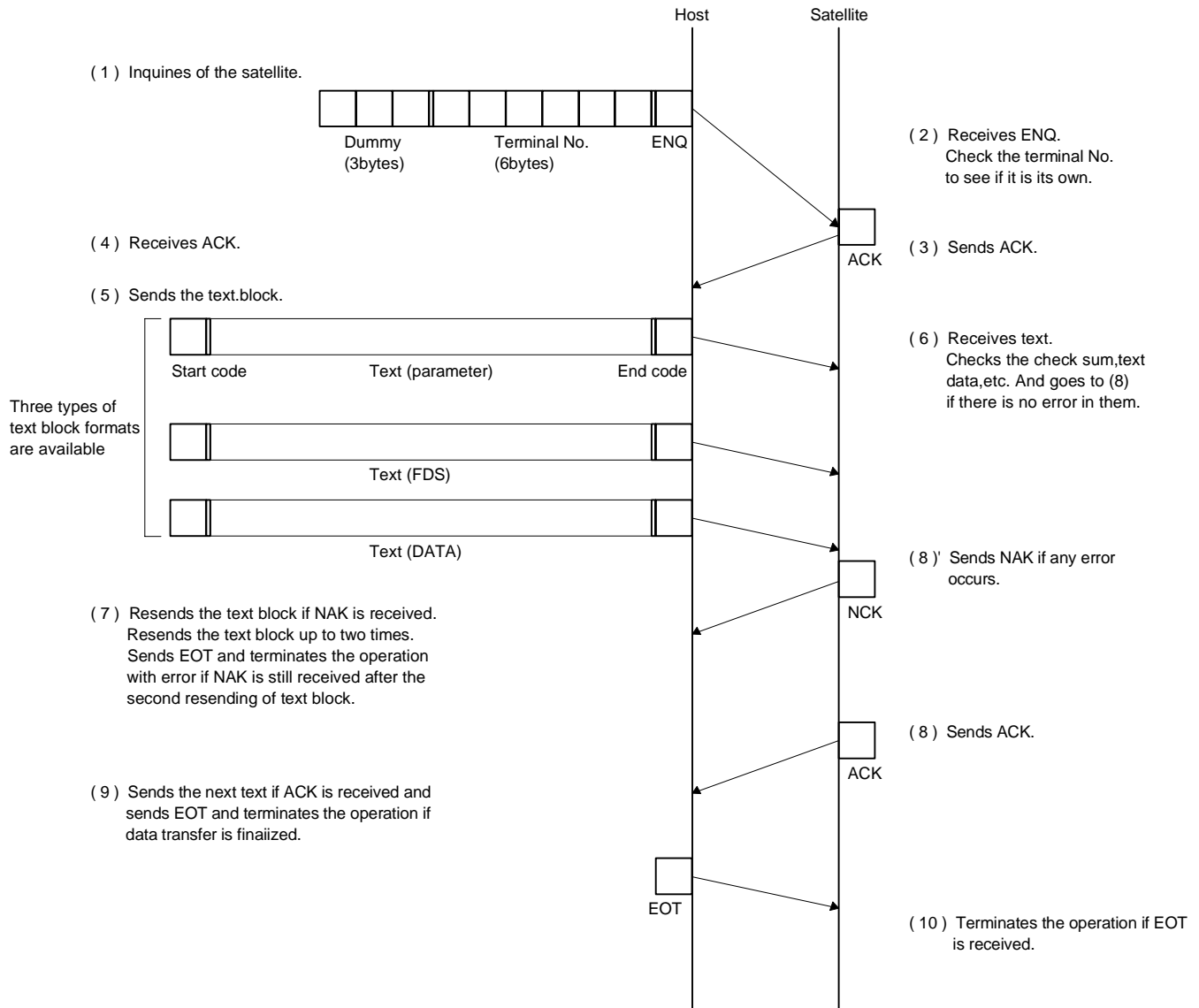
# CHAPTER 5. RS-232 PROTOCOL

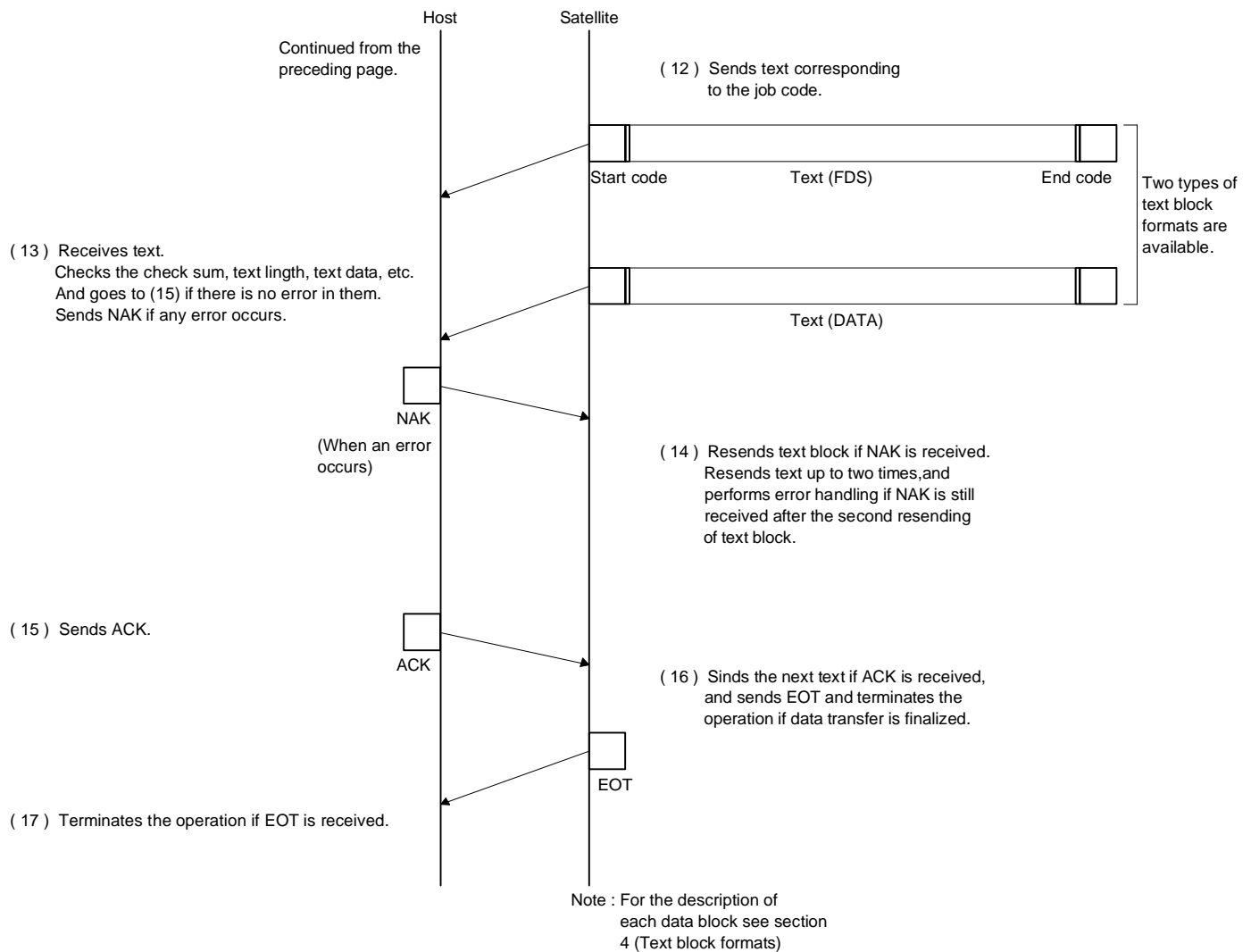
## 1. Basic protocol specification

### 1) Data transmission from the host to a satellite



## 2) Data transmission from satellite to the host





## 2. Transmission control procedure matrix

### 1) Down-loading matrix for the host

STATE EVENT	Initial	After sending ID ENQ	After sending text
	0	1	2
ENQ	—	—	—
ACK	—	Sends text and goes to 2.	Sends text and goes to 2. Sends EOT and then goes to 0. (Normal end)
NAK	—	—	Resends the text and then goes to 2. If the host has resent the text two times, it sends EOT and goes to 0. (ERROR END)
EOT	—	—	The host goes to 0. (ERROR END)
TEXT	—	—	—
TIME-UP	—	Resends ID ENQ and then goes to 1. If the host has resent ID ENQ two times, it sends EOT and goes to 0. (ERROR END)	Resends the text and then goes to 2. If the host has resent the text two times, it sends EOT and goes to 0. (ERROR END)
KEY ENTRY	Sends ID ENQ and goes to 1.	—	—

Time-up: One second after sending of ID ENQ.  
Four seconds after sending of text.

## 2) Up-loading matrix for the host

STATE EVENT	Initial	After sending ID ENQ	After sending text
	0	1	2
ENQ	—	—	—
ACK	—	Sends text and goes to 2.	Sends EOT and goes to 3.
NAK	—	—	Resends the text and then goes to 2. If the host has resent the text two times, it goes to 0. (ERROR END)
EOT	—	—	The host goes to 0. (ERROR END)
TEXT	—	—	—
TIME-UP	—	Resends ID ENQ and then goes to 1. If the host has resent ID ENQ two times, it goes to 0. (ERROR END)	Resends the text and then goes to 2. If the host has resent the text two times, it goes to 0. (ERROR END)
KEY ENTRY	Sends ID ENQ and goes to 1.	—	—

Time-up: One second after sending of ID ENQ.

Four seconds after sending of text.

STATE EVENT	After sending EOT	After sending ACK	After sending NAK
	3	4	5
ENQ	Sends ACK and goes to 4.	After the host has received ENQ, resends ACK and goes to 4. After the host has received TEXT, ignores the ENQ.	—
ACK	—	—	—
NAK	—	—	—
EOT	The host goes to 0 (ERROR END)	After the host has received TEXT, goes to 0. (Normal end) After the host has received ENQ, goes to 0.(ERROR END)	The host goes to 0. (ERROR END)
TEXT	—	The host checks the text block, if the block is correct, the host sends ACK and goes to 4. If it is not correct, the host sends NAK and goes to 5. If transmission cannot be continued, the host sends EOT and goes to 0.	The host checks the checks the text block, if the block is correct, the host sends ACK and goes to 4. If it is not correct, the host sends NAK and goes to 5. If transmission cannot be continued, the host sends EOT and goes to 0. (ERROR END)
TIME-UP	Resends EOT and goes to 3. If the host has resent the EOT two times, it goes to 0. (ERROR END)	The host goes to 0. (ERROR END) Time-up is 7 seconds	The host goes to 0. (ERROR END) Time-up is 7 seconds
KEY ENTRY	—	—	—

Time-up: Two second after sending of EOT.



### 3) Down-loading matrix for the satellite

STATE EVENT	Initial	After sending ACK	After sending NAK
	0	1	2
ID-ENQ	Satellite checks the terminal No.:If it is correct, satellite sends ACK and goes to 1. If it is not correct, Satellite ignores the ID-ENQ.	Satellite checks the terminal No.:If it is correct, satellite sends ACK and goes to 1. If it is not correct, Satellite ignores the ID-ENQ.	—
ACK	—	—	—
NAK	—	—	—
EOT	—	After satellite has received TEXT, goes to 0. (Normal end) Before satellite has received TEXT, ignores the EOT	Satellite goes to 0. (ERROR END)
TEXT	—	Satellite checks the text block, if the block is correct, Satellite sends ACK and goes to 1. If it is not correct, satellite sends NAK and goes to 2. If transmission cannot be continued, satellite sends EOT and goes to 0. (ERROR END)	Satellite checks the text block, if the block is correct, Satellite sends ACK and goes to 1. If it is not correct, satellite sends NAK and goes to 2. If transmission cannot be continued, satellite sends EOT and goes to 0. (ERROR END)
TIME-UP	—	Satellite sends EOT, and goes to 0. (ERROR END) Time-up is 7 seconds	The host goes to 0. (ERROR END) Time-up is 7 seconds

#### 4) Up-loading matrix for the satellite

STATE EVENT	Initial	After receiving ID-ENQ and sending ACK.	After sending NAK
	0	1	2
ID-ENQ	Satellite checks the terminal No.:If it is correct, satellite sends ACK and goes to 1. If it is not correct, satellite ignores the ID-ENQ.	Satellite checks the terminal No.:If it is correct, satellite sends ACK and goes to 1. If it is not correct, satellite ignores the ID-ENQ.	—
ACK	—	—	—
NAK	—	—	—
EOT	—	—	Satellite goes to 0. (ERROR END)
TEXT	—	Satellite checks the text block, if the block is correct, satellite sends ACK and goes to 3. If it is not correct, Satellite sends NAK and goes to 2. If transmission cannot be continued, satellite sends EOT and goes to 0. (ERROR END)	Satellite checks the text block, if the block is correct, Satellite sends ACK and goes to 3. If it is not correct, Satellite sends NAK and goes to 2. If transmission cannot be continued, satellite sends EOT and goes to 0. (ERROR END)
TIME-UP	—	Satellite goes to 0. (ERROR END) Time-up is 7 seconds	Satellite goes to 0. (ERROR END) Time-up is 7 seconds

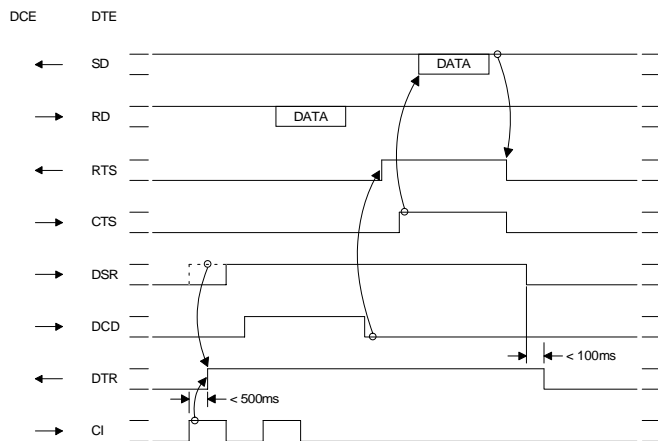
STATE EVENT	After receiving text and sending ACK	After sending ENQ	After sending TEXT
	3	4	5
ID-ENQ	—	—	—
ACK	—	Satellite sends the text and goes to 5.	Satellite sends the text and goes to 5, or sends the EOT and goes to 0. (Normal END)
NAK	—	—	Resends the text and then goes to 5. If satellite has resent the text two times, sends EOT and goes to 0. (ERROR END)
EOT	Satellite sends ENQ and goes to 4.	Resends the ENQ and then goes to 4. If Satellite has resent the ENQ two times, sends EOT and goes to 0. (ERROR END)	Satellite goes to 0. (ERROR END)
TEXT	Satellite checks the text block, if the block is correct, satellite sends ACK and goes to 3. If it is not correct, satellite sends NAK and goes to 2. If transmission cannot be continued, satellite sends EOT and goes to 0. (ERROR END)	—	—
TIME-UP	The host goes to 0. (ERROR END) Time-up is 7 seconds	Resends the ENQ and then goes to 4. If satellite has resent the ENQ two times, sends EOT and goes to 0. (ERROR END)	Resends the text and then goes to 5. If satellite has resent the text two times, sends EOT and goes to 0. (ERROR END)

Time-up: Four seconds after sending of text.  
Two second after sending of ENQ.

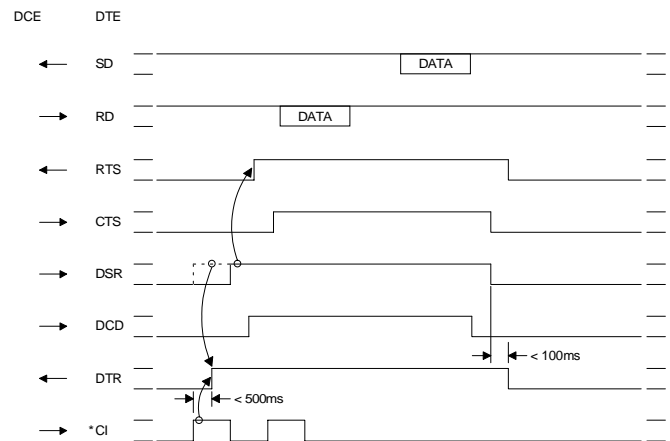
# CHAPTER 6. CONTROL SIGNAL SEQUENCE

## 1. Online transmission

### 1) Half duplex transmission

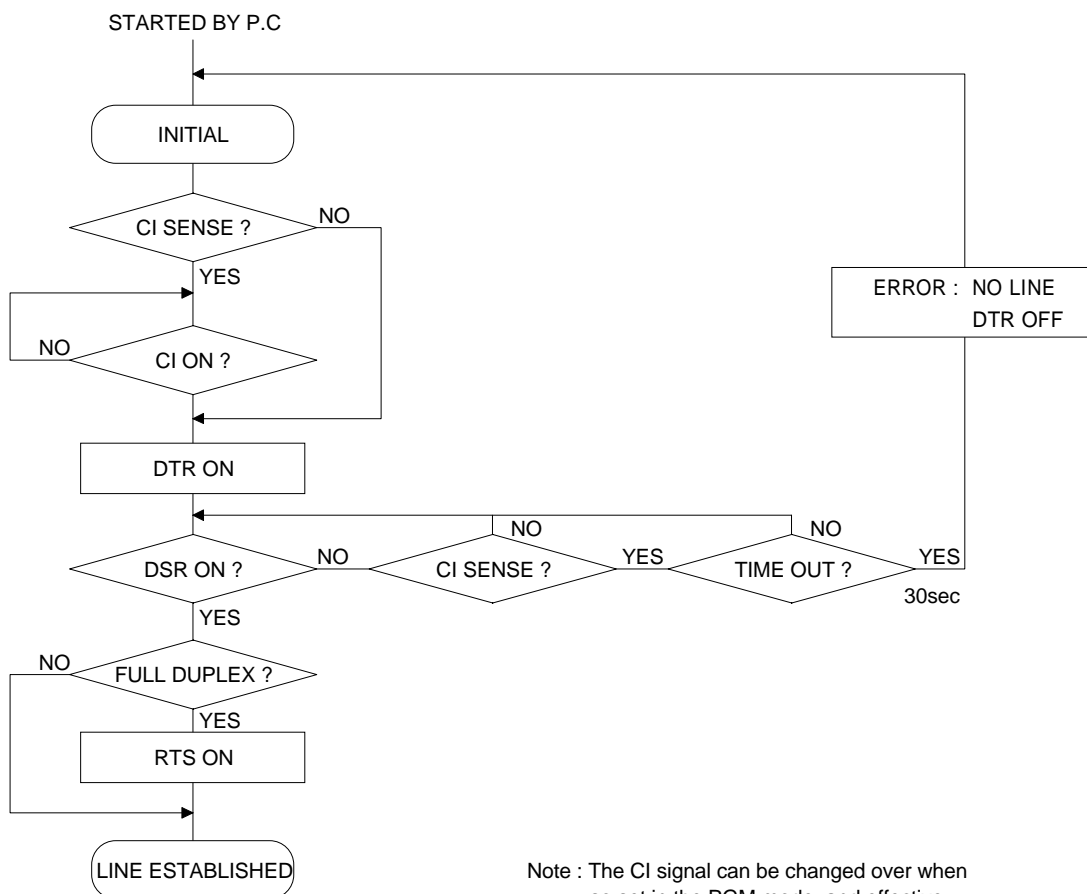


### 2) Full duplex transmission



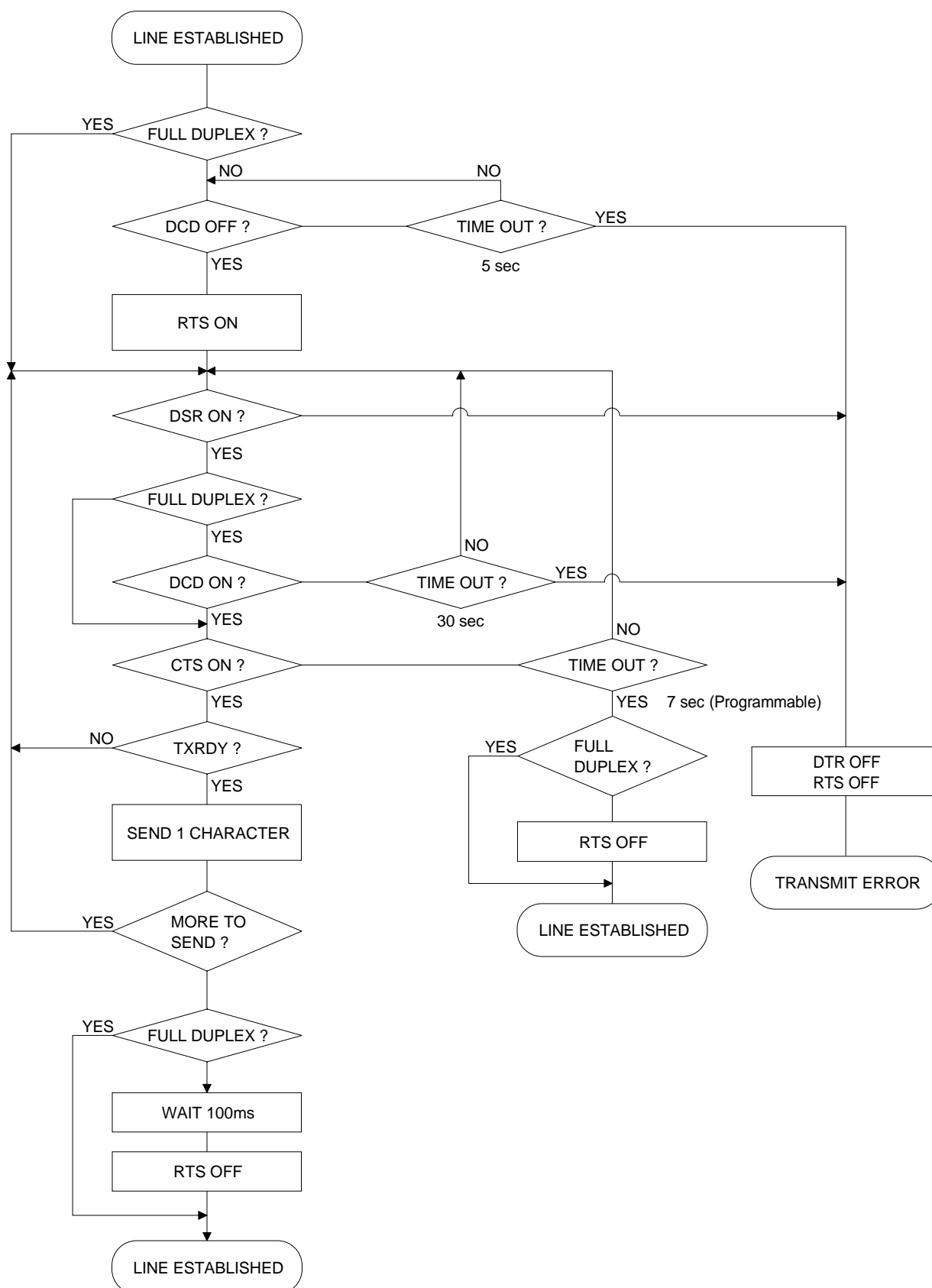
\*Note: In the direct connect mode, same as full duplex control, but the CI signal is not controlled.

### 3) Line connection sequence flow

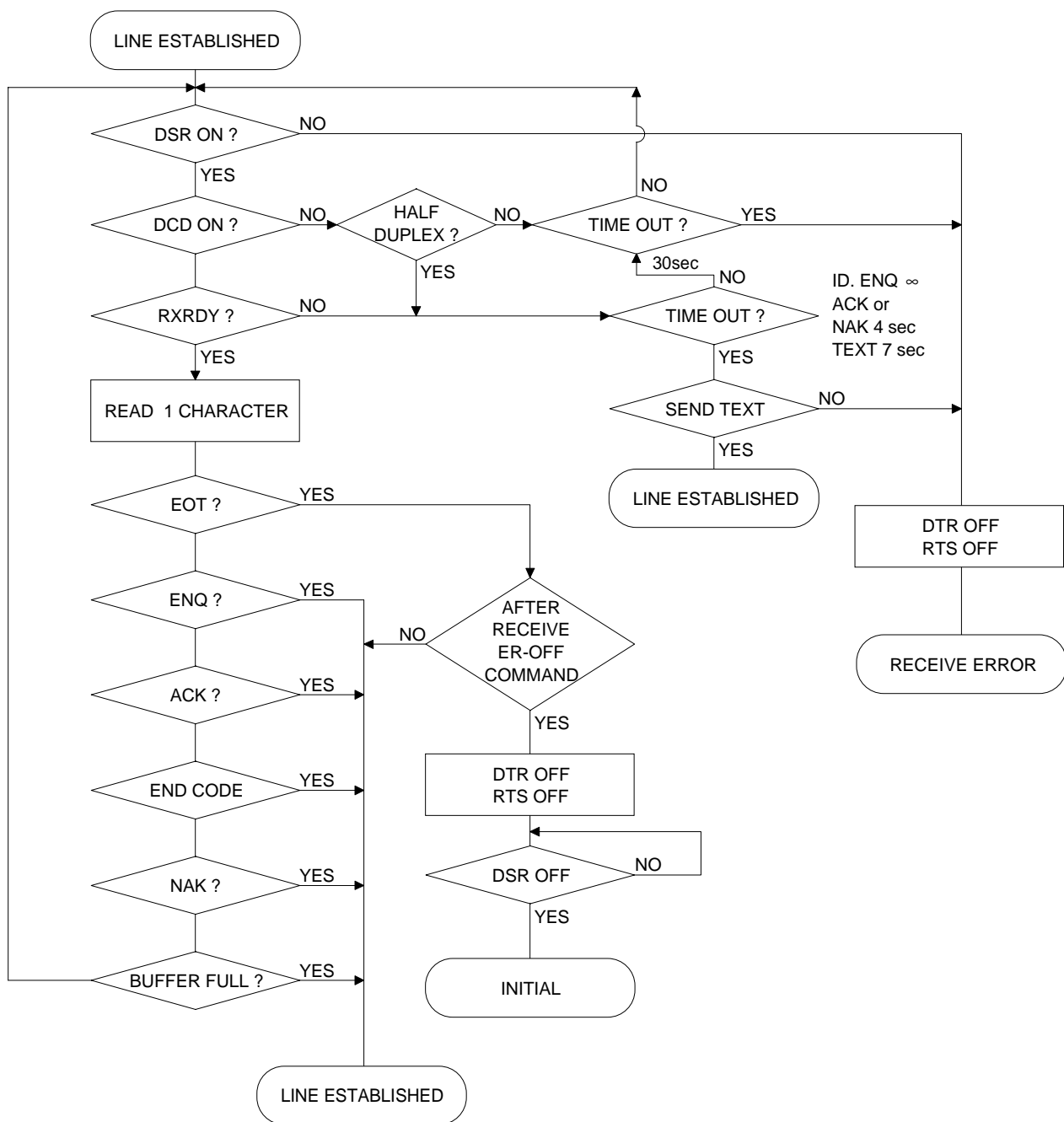


Note : The CI signal can be changed over when so set in the PGM mode, and effective at ECR side.

#### 4) Transmission sequence flow

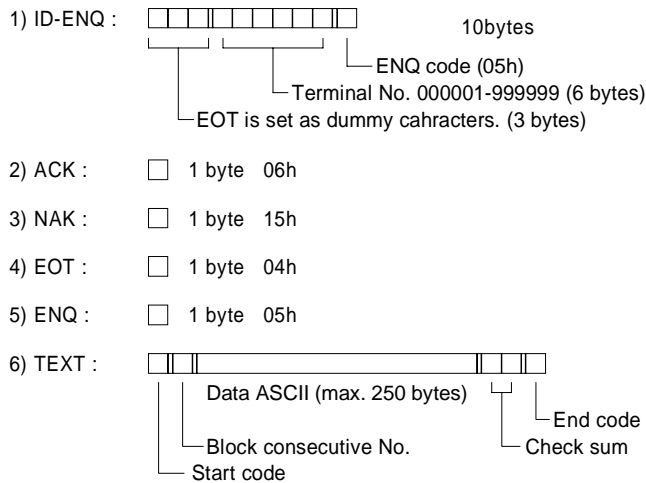


### 5) Receiving sequence flow



# CHAPTER 7. DATA BLOCK FORMAT

## 1. Basic format



Start code : This code may not be provided.  
 Null is impermissible.

End code : This code may not be provided.  
 Null or any same code as the start code is not permissible.

When master reset is performed, the default is assumed:

Start code = 02h

End code = 0Dh

Block consecutive No. : This number starts with 30h and cycles like this: 30h, 31h — 39h, 30h, 31h (Ring counter system)

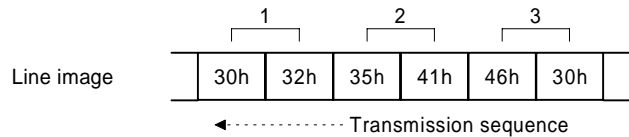
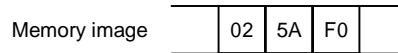
Check sum : 2 bytes hex number  
 Low-order 8-bit data of the complement of 2 for the sum of text data.

RAM data: : Even number of data that is obtained by dividing one byte of RAM data into high-order 4 bits and low-order 4 bits and converting them to ASCII codes shown in the code conversion table.

Code conversion table .

Print code (high-order or low-order 4 bits)		Line image
Bit image	Hexadecimal	ASCII
0000	0	30h
0001	1	31h
0010	2	32h
0011	3	33h
0100	4	34h
0101	5	35h
0110	6	36h
0111	7	37h
1000	8	38h
1001	9	39h
1010	A	41h
1011	B	42h
1100	C	43h
1101	D	44h
1110	E	45h
1111	F	46h

Example



## CHAPTER 8. ONLINE application

### 1. ONLINE preset

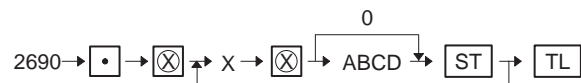
#### 1) SRV programming: NONE

#### 2) PGM programming

Job#	PGM-MODE programming for online operation
2690	The assignment of RS232 channel by each devices.
6110	Programming of the terminal number
6111	Programming of the modem control
6112	Programming of the transmission data rate (Bau rate)
6113	Programming of the start and end code.
6115	Programming of time out value
6110	Online Preset reading

#### [JOB#2690] MRS = 0000

The assignment of RS232 channel by each devices.

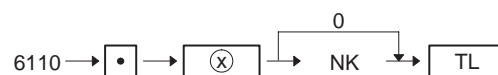


X: 1

A:	On-line	2690-A
	No	0
	Yes (Channel No. = 8)	8

#### [JOB#6110] MRS = 000001

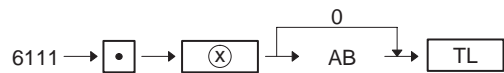
Programming of the terminal number



NK: Terminal No. = 0 to 999999

[JOB#6111] MRS = 00

Programming of the modem control



6111-A: 1. Sensing of the CI signal Yes/No

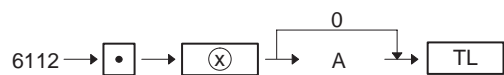
1. Sensing of the CI signal	6111-A
No	0
Yes	1

6111-B: 1. Duplex type

1. Duplex type	6111-B
Full duplex system	0
Half duplex system	1

[JOB#6112] MRS = 5

Programming of the transmission baud rate

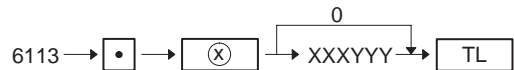


6112-A: Transmission baud rate

Transmission baud rate	6112-A
300 bps	0
600 bps	1
1200 bps	2
2400 bps	3
4800 bps	4
9600 bps	5
19200 bps	6

[JOB#6113] MRS = 002013

Programming of the start and end code



XXX: Start code = 02H (STX)  
YYY: End code = 0DH (CR)

[JOB#6115] MRS = 007

Programming at the time-out value.



XXX: 1 ~ 255 sec

[JOB#6110]

Online preset reading



# SHARP PROGRAMMING MANUAL

CODE: 00ZERA440VPME



## ELECTRONIC CASH REGISTER

### ER-A440 MODEL ER-A450

(For "V" version)

SRV KEY: LKGIM7113RCZZ

PRINTER: DP-730 (Dot printer) for ER-A440

PR-45M (Thermal printer) for ER-A450

#### CONTENTS

CHAPTER 1. SERVICE (SRV) MODE .....	1-1
CHAPTER 2. PROGRAM (PGM2/PGM1) MODE.....	2-1
CHAPTER 3. OP X/Z, X1/Z1, X2/Z2 MODE .....	3-1
CHAPTER 4. CHANGING EURO FUNCTION (X2/Z2 mode JOB). . .	4-1



# CHAPTER 1. SERVICE (SRV) MODE

The SRV key is used for operating in the SRV mode.

## 1. SRV. reset (Program Loop Reset)

Used to return the machine back to its operational state after a lock-up has occurred.

### Procedure

- Method 1
  - 1) Turn off the AC switch.
  - 2) Set the mode switch to (SRV') position.
  - 3) Turn on the AC switch.
  - 4) Turn to (SRV) position from (SRV') position.
- Method 2
  - 1) Set the mode switch to PGM2 position.
  - 2) Turn off the AC switch.
  - 3) While holding down JOURNAL FEED key and RECEIPT FEED key, turn on the AC switch.

Note: When disassembling and reassembling always power up using method 1 only. Method 2 will not reset the CKDC8.

Note: SRV programming job#926-B must be set to "4" to allow PGM program loop reset.

PRG. RESET \*\*\*

## 2. Master reset (All memory clear)

There are two possible methods to perform a master reset.

### • MRS-1

Used to clear all memory contents and return machine back to its initial settings. return keyboard back to default. for default keyboard layout.

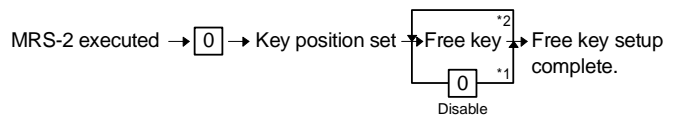
### Procedure

- 1) Turn off the AC switch.
  - 2) Set the MODE switch to the (SRV') position.
  - 3) Turn on the AC switch.
  - 4) While holding down JOURNAL FEED key, turn to (SRV) position from (SRV') position.
- MRS-2  
Used to clear all memory and keyboard contents.  
This reset returns all programming back to defaults. The keyboard must be entered by hand.  
This reset is used if an application needs different keyboard layout other than that supplied by a normal MRS-1.

### Procedure

- 1) Turn off the AC switch.
  - 2) Set the MODE switch to the (SRV') position.
  - 3) Turn on the AC switch.
  - 4) While holding down JOURNAL FEED key and RECEIPT FEED key, turn to (SRV) position from (SRV') position.
  - 5) Key position assignment:
- \* After the execution of MRS-2, only the RECEIPT FEED and JOURNAL FEED keys can remain effective on key assignment. Any key can be assigned on any key position on the main keyboard.

[key setup procedure]



MASTER RESET \*\*\*

NOTES:

- \* 1: When the 0 key is pressed, the key of the key number on display is disabled.
- \* 2: Push the key on the position to be assigned. With this, the key of the key number on display is assigned to that key position.

Key number	Key name	Key number	Key name
1	Numeric key "0"	9	Numeric key "8"
2	Numeric key "1"	10	Numeric key "9"
3	Numeric key "2"	11	Numeric key "00"
4	Numeric key "3"	13	Decimal point key
5	Numeric key "4"	14	CL key
6	Numeric key "5"	15	⊗ key
7	Numeric key "6"	16	ST key
8	Numeric key "7"	17	TL key

## 3. Reading of the SRV mode program

### List of program reports

JOB#	Report name
900	SRV-mode program full item report (not incl. keyboard layout)
950	Keyboard layout report (on keys other than dept. keys and direct PLU keys)
951	Keyboard layout report (on dept. keys and direct PLU keys)
970	SRV file programming report

\* This printing sample is used from the ER-A450.  
The printed data from the ER-A440 is the same as the ER-A450.

### [JOB# 900]

Reading the contents of the SRV mode programming

Key operation.

900 →  → 

YOUR RECEIPT  
THANK YOU

01/01/00 0:02  
000000 #0004

#900

901# 0102

902# 0000

903# 4000

904# 0000

905# 0100

906# 0001

907# 0014

908# 0000

909# 2001

910# 0204

911# 0000

912# 1141

913# 0002

914# 0100

915# 0020

916# 1000

917# 0000

918# 0000

919# 0000

920# 0000

921# 0000

922# 0000

923# 0000

924# 0000

925# 0000

926# 0400

927# 0000

928# 0000

929# 0000

980# 0000

930# Z1 0000

932# Z1 0000

933# Z1 0000

934# Z1 0000

935# Z1 0000

937# Z2 0000

939# Z2 0000

942#

GT2 \*00000000000.00

943#

GT3 \*00000000000.00

944# 0000

948# 00

949# TRAINING

986# \*

987# 0

Header graphical logo(Default:  
Graphical LOGO only)

Date/Time

Machine No./Consecutive No.

JOB#

JOB#//Programming  
data(ABCD)

For ER-A440:  
(Default: 3 line header)

SHARP  
PRESENTS THE  
ER-A440

General Z1 reset counter

Clerk Z1 reset counter

Hourly Z1 counter

PLU Z1/Z2 reset counter

Cashier Z1 reset counter

General Z2 reset counter

Daily net Z2 reset counter

GT2 counter

GT3 counter

Secret code for PGM2 mode

Training cashier No.

Training mode title



Domestic currency symbol

Initial text mode programming

### [JOB# 950]

Reading the contents of the SRV mode programming for FREE KEY  
LAYOUT setting. (Function Key)

Key operation

950 →  → 

YOUR RECEIPT  
THANK YOU

01/01/00 0:03  
000000 #0006

#950

001 0 KEY 017

002 1 KEY 018

003 2 KEY 022

004 3 KEY 026

005 4 KEY 019

006 5 KEY 023

007 6 KEY 027

008 7 KEY 020

009 8 KEY 024

010 9 KEY 028

011 00 KEY 021

012 000KEY ---

013 . KEY 025

014 CLEAR 016

015 X 015

016 SBT L 064

017 TOTAL 063

018 # 012

019 NS 011

020 PLU 044

021 GCCOPY ---

023 RCPT 003

024 VOID 009

025 RFND 005

026 %1 002

027 %2 001

028 %3 ---

029 %4 ---

030 (-) 1 007

031 (-) 2 ---

032 (-) 3 ---

033 (-) 4 ---

034 VAT 056

035 AUTO 014

036 AUTO2 013

037 AUTO3 ---

038 AUTO4 ---

039 AUTO5 ---

040 AUTO6 ---

041 AUTO7 ---

042 AUTO8 ---

043 AUTO9 ---

044 AUTO10 ---

045 CA2 ---

046 CHECK 059

047 CHECK2 065

048 CHECK3 ---

049 CHECK4 ---

Header graphical logo

Date/Time

Machine No./Consecutive No.

JOB#

Key No./Key label name/  
Location No.

Key No./Key label name/  
Location No.(---:Not used)

021 GCCOPY ---

022 VP ---

023 RCPT 003

1 - 2

## [JOB# 951]

Reading the contents of the SRV mode programming for FREE KEY LAYOUT setting. (Dept. & PLU key)

Key operation

951 →  → 

050	CR1	060
051	CR2	066
052	CR3	067
053	CR4	---
054	EX 1	062
055	EX 2	061
056	EX 3	---
057	EX 4	---
058	RA	010
059	RA 2	---
060	PO	006
061	PO 2	---
062	1/2KEY	---
063	AMT	050
064	VAT SF	---
065	DIF ST	---
066	CASH#	068
067	CLK#	---

YOUR RECEIPT  
THANK YOU

01/01/00 0:04  
000000 #0007

#951

001 001 033

002 002 034

003 003 035

004 004 036

005 005 037

006 006 039

007 007 040

008 008 041

009 009 042

010 010 043

011 011 045

012 012 046

013 013 047

014 014 048

015 015 049

016 016 051

017 017 052

018 018 053

019 019 054

020 020 055

021 021 ---

022 022 ---

023 023 ---

— Header graphical logo

— Date/Time

— Machine No./Consecutive No.

— JOB#

— Key No./Key label name/  
Location No.

— Key No./Key label name/  
Location No.(---:Not used)

024	024	---
025	025	---
026	026	---
027	027	---
028	028	---
029	029	---
030	030	---
031	031	---
032	032	---
033	033	---
034	034	---
035	035	---
036	036	---
037	037	---
038	038	---
039	039	---
040	040	---
041	041	---
042	042	---
043	043	---
044	044	---
045	045	---
046	046	---
047	047	---
048	048	---
049	049	---
050	050	---
051	051	---

[JOB#970]

Reading the contents of the SRV mode programming for FILE setting.

Key operation

970 → [X] → [TL]

YOUR RECEIPT  
THANK YOU

01/01/00 0:05  
000000 #0009

#970

*001*	00020	/00020
*002*	00020	/00020
*004*	00020	/00020
*006*	00020	/00020
*007*	00020	/00020
*008*	01000	/00020
*009*	01000	/00020
*011*	01000	/00020
*013*	01000	/00020
*016*	00076	/00076
*017*	00076	/00076
*018*	00076	/00076
*019*	00004	/00004
*020*	00004	/00004
*021*	00004	/00004
*022*	00041	004/00041
*023*	00041	004/00041
*024*	00041	004/00041
*025*	00041	/00041
*026*	00041	/00041
*027*	00041	/00041
*028*	00041	/00041
*039*	00048	/00048
*040*	00048	/00048
*041*	00032	/00000
*042*	00032	/00000
*043*	00080	/00080

1E4000

1EF136

1FFFFFF

Header graphical logo

Date/Time

Machine No./Consecutive No.

JOB#

File table No./No.of records/  
No.of used records

File table No./No.of records/  
No.of blocks/No.of used records

File memory start address

Empty memory start address

Memory end address

[JOB#990]

Reading the contents of the SRV mode programming for SSP setting.

Key operation

990 → [X] → [TL]

YOUR RECEIPT  
THANK YOU

01/01/00 0:06  
000000 #0012

#990

SSP ERA450V - 001

001	001
002	002
003	003
004	004
005	005
006	006
007	007
008	008
009	009
010	010
011	011
012	012
013	013
014	014
015	015
016	016

CHECK SUM ERROR

Header graphical logo

Date/Time

Machine No./Consecutive No.

JOB#

SSP No.

Step No./SSP data

Error message

For ER-A440:

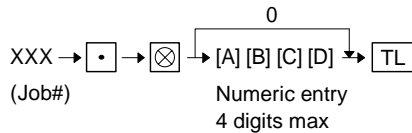
SSP ERA440V - 001

001	001
002	002
003	003

1 - 4

## 4. Service mode programming

The following are the key operation required for programming.



Details of [A][B][C][D] will be discussed at each item description.

★ mark is MRS setting.

### [JOB#901] ER-A440: MRS=0102 ER-A450: MRS=0102

#901-A: 1. EFT easy card

1.EFT easy card	901-A
No	0
Yes	2

★

#901-B: Tax system

1. TAX system	901-B
Auto TAX 1~6	0
Auto VAT 1~6	1
Manual VAT 1~6	2
Manual VAT 1	3
Manual TAX 1~6	4
Auto VAT 1~3 and Auto TAX 4~6	5

★

#901-C: 1. Rounding system

1. Rounding system	901-C
Normal	0
SWEDEN	1
DENMARK	4

★

#901-D: 1. TAB setting

1. TAB setting	901-D
0	0
0.0	1
0.00	2
0.000	3

★

### [JOB#902] ER-A440: MRS=0000 ER-A450: MRS=0000

#902-A, B, C: Not used (Fixed at "000")

#902-D: 1. EFT terminal

1. EFT terminal	902-D
No	0
Yes	4

★

### [JOB#903] ER-A440: MRS=4000 ER-A450: MRS=4000

#903-A: 1. ECR data copy baud rate

1. Baud rate (bps)	903-A
2400	2
4800	3
9600	4
19200	5
38400	6

★

#903-B, C, D: Not used (Fixed at "000")

### [JOB#904] ER-A440: MRS=0000 ER-A450: MRS=0000

#904-A: 1. Printing of date

1. Printing of date	904-A
Yes	0
No	4

★

#904-B: 1. Printing of consecutive No.

1. Printing of consecutive No.	904-B
Yes	0
No	4

★

#904-C, D: Not used (Fixed at "00")

### [JOB#905] ER-A440: MRS=0100 ER-A450: MRS=0100

#905-A: Not used (Fixed at "0")

#905-B: 1. Tax printing when taxable subtotal is zero.  
2. Tax printing when tax is zero.

1. Taxable subtotal is zero	2. Tax is zero	905-B
Skip	Print	0
	Skip	1
Print	Print	4
	Skip	5

★

#905-C: 1. Printing of rounding amount in receipt. (For Australia)  
2. Printing format for split pricing entry. (For Australia)

1. Printing of rounding amount in receipt	2. Printing format for split pricing entry	905-C
No	Normal format	0
	Australia format	1
Yes	Normal format	2
	Australia format	3

★

#905-D: Not used (Fixed at "0")

### [JOB#906] ER-A440: MRS=0001 ER-A450: MRS=0001

#906-A: 1. Print Dept. and PLU number on receipt.

1. Print Dept. and PLU number on receipt.	906-A
No	0
Yes	4

★

#906-B: 1. Bottle return function  
2. Hash department setting

1. Bottle return function	2. Hash department setting	906-B
Disable	Disable	0
	Enable	2
Enable	Disable	4
	Enable	6

★

#906-C: 1. Split pricing counting

2. Multiplication entry

1. Split pricing counting	2. Multiplication entry	906-C	
Quantity	Multiplication	0	★
	Successive multiplication	1	
	Split pricing	2	
Package	Multiplication	4	
	Successive multiplication	5	
	Split pricing	6	

#906-D: 1. Presetting consecutive No.

2. Fractional quantity

1. Presetting consecutive No.	2. Fractional quantity	906-D	
Yes	No	0	★
	Yes (3 digit decimal place)	1	
No	No	2	
	Yes (3 digit decimal place)	3	

**[JOB#907] ER-A440: MRS=0014**  
**ER-A450: MRS=0014**

#907-A, B: Not used (Fixed at "00")

#907-C: 1. In case of all cashier CCD and individual cashier CCD, X report before CCD entry

2. Locking of REG mode entry after individual cashier resetting

3. Minus department and PLU

1. In case of all cashier CCD and individual cashier CCD, X report before CCD entry	2. Locking of REG mode entry after individual cashier resetting	3. Minus department and PLU	907-C	
Disable	Disable	Disable	0	★
		Enable	1	
	Enable	Disable	2	
		Enable	3	
Enable	Disable	Disable	4	
	Enable	Enable	5	
		Disable	6	
		Enable	7	

#907-D: 1. Z-counter print for PLU, Hourly, Cashier, Clerk, Daily net

2. CCD compulsory

1. Z-counter print	2. CCD compulsory	907-D	
Yes	Non compulsory	0	
	For individual cashier	1	
	For all cashier	2	
No	Non compulsory	4	★
	For individual cashier	5	
	For all cashier	6	

**[JOB#908] ER-A440: MRS=0000**

**ER-A450: MRS=0000**

#908-A: GT print on Z report

GT1 (NET)	GT2 (+)	GT3 (-)	908-A	
Print	Print	Print	0	★
		Skip	1	
	Skip	Print	2	
Skip	Print	Skip	3	
		Print	4	
		Skip	5	
	Skip	Print	6	
		Skip	7	

#908-B: GT print on X report

GT1 (NET)	GT2 (+)	GT3 (-)	908-B	
Skip	Skip	Skip	0	★
		Print	1	
	Print	Skip	2	
Print	Skip	Print	3	
		Skip	4	
		Print	5	
	Print	Skip	6	
		Print	7	

#908-C: 1. Add void-mode transaction data to hourly total report

2. X1/Z1 report in X2/Z2 mode

3. Resetting of consecutive number in Z1 resetting

1. Add void-mode transaction to hourly total report	2. X1/Z1 report in X2/Z2 mode	3. Resetting of consecutive No.in Z1 resetting	908-C	
No	Enable	No	0	★
		Yes	1	
	Disable	No	2	
		Yes	3	
Yes	Enable	No	4	
		Yes	5	
	Disable	No	6	
		Yes	7	

#908-D: 1. Printing X/Z report Journal only/Receipt & Journal (Except the individual cashier and individual clerk report)

2. Z1 resetting, resets GT Enable/Disable

1. Printing X/Z report	2. GT resetting at Z1	908-D	
Receipt & Journal	Disable	0	★
	Enable	1	
Journal	Disable	4	
	Enable	5	

**[JOB#909] ER-A440: MRS=2001**  
**ER-A450: MRS=2001**

#909-A: 1. Printing of Training GT on the X report

2. Printing of Training GT on the Z report

1. Printing of Training GT on the X report	2. Printing of Training GT on the Z report	909-A	
Skip	Print	0	★
	Skip	1	
Print	Print	2	
	Skip	3	

#909-B: 1. Printing of data on PLU resetting report

2. All Z1 resetting in X1/Z1 mode

1. Printing of data on PLU resetting report	2. All Z1 resetting in X1/Z1 mode	909-B	
Print	Enable	0	★
	Disable	2	
Skip	Enable	4	
	Disable	6	

#909-C: 1. Printing of data in void mode totalizer and manager void totalizer on Z2 report

2. Printing of data in void mode totalizer and manager void totalizer on Z1 report

2. Printing of data in void mode totalizer and manager void totalizer on Z2 report	3. Printing of data in void mode totalizer and manager void totalizer on Z1 report	909-C	
Print	Print	0	★
	Skip	2	
Skip	Print	4	
	Skip	6	

#909-D: 1. Clerk change during entry operation

2. Entry of clerk code compulsory

3. When real cashier key is taken out

1. Clerk change during entry operation	2. Entry of clerk code compulsory	3. When real cashier key is taken out	909-D	
Disable	No (After clerk Z1 only)	Transaction in progress	0	★
		Transaction finalized	1	
	Yes (Everytime)	Transaction in progress	2	
		Transaction finalized	3	
Enable	No (After clerk Z1 only)	Transaction in progress	4	
		Transaction finalized	5	
	Yes (Everytime)	Transaction in progress	6	
		Transaction finalized	7	

**[JOB#910] ER-A440: MRS=0204**  
**ER-A450: MRS=0204**

#910-A: 1. Clerk name print on receipt when clerk is changed. (It is always print on Journal)

2. Overlaped cashier function. (This selection is available only for "Cashier only" system)

1. Clerk name print on receipt when clerk is changed.	2. Overlaped cashier function	910-A	
No	No	0	★
	Yes	1	
Yes	No	4	
	Yes	5	

#910-B: 1. Cashier/Clerk code display and print.

2. Auto cashier sign off at the end of transaction

1. Cashier/Clerk code display and print.	2. Auto cashier sign off at the end of transaction	910-B	
Hidden	No (After cashier Z1 only)	0	
	Yes (Everytime)	1	
Appear	No (After cashier Z1 only)	2	★
	Yes (Everytime)	3	

#910-C: Not used (Fixed at "0")

#910-D: 1. Cashier system

1. Cashier system	910-D	
One hole	1	★
Cashier code entry	4	

**[JOB#911] ER-A440: MRS=0000**  
**ER-A450: MRS=0000**

#911-A: 1. Fraction treatment

1. Fraction treatment	911-A	
Round off	0	★
Round up	1	
Round down	2	

#911-B, C, D: Not used (Fixed at "000")

**[JOB#912] ER-A440: MRS=1140**  
**ER-A440: MRS=1141**

#912-A: 1. Date print format

Date format	912-A	
Month/Day/Year	0	★
Day/Month/Year	1	
Year/Month/Day	2	

#912-B: 1. Time system

1. Time system	912-B	
12H	0	★
24H	1	

#912-C: 1. After transaction receipt format

2. Copy receipt

3. Footer print control

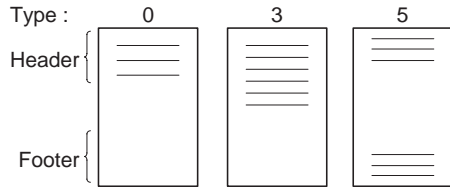
1. After transaction receipt	2. Copy receipt	3. Footer print control	912-C	
Total only	No	All receipt	0	
		On selected function keys at the time of finalization	1	
	Yes	All receipt	2	
		On selected function keys at the time of finalization	3	
Detail	No	All receipt	4	★
		On selected function keys at the time of finalization	5	
	Yes	All receipt	6	
		On selected function keys at the time of finalization	7	

#912-D: (ER-A440: No STAMP function) 1. Message control.

1. Message control	912-D
3-line header	0
6-line header	3
3-line header and 3-line footer	5

★

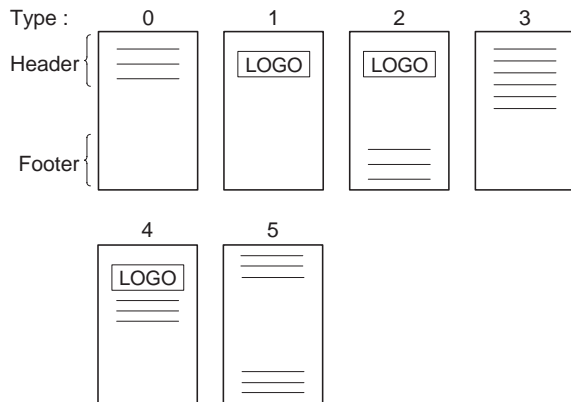
\*



#912-D: (ER-A450) 1. LOGO Message control.

1. LOGO Message control	912-D
3-line header instead of a LOGO	0
Graphical LOGO only	1
Graphical LOGO and 3-line footer	2
6-line header	3
Graphical LOGO and 3-line header	4
3-line header and 3-line footer	5

★



[JOB#913] ER-A440: MRS = 0002

ER-A450: MRS = 0002

#913-A (ER-A440): 1. Validation Print format on Receipt/Journal  
2. Content of total VP amount

1. Validation Print format on Receipt/Journal	2. Content of total VP amount	913-A
DATA & AMOUNT	Total amount	0
	Tendered amount	1
MACHINE No. & AMOUNT	Total amount	2
	Tendered amount	3

★

#913-A (ER-A450): Not used (Fixed at "0")

#913-B (ER-A440): 1. Printing of subtotal

2. Escape the compulsory of VP

\* ☐ , ☐ keys to escape validation (MGR mode).

1. Printing of subtotal	2. Escape the compulsory of VP	913-B
No	Disable	0
	Enable	1
Yes	Disable	4
	Enable	5

★

#913-B (ER-A450): 1. Printing of subtotal

1. Printing of subtotal	913-B
No	0
Yes	4

★

#913-C: 1. Buzzer off 2 sec. after lock error

2. Buffered keyboard

1. Buzzer off 2 sec. after lock error	2. Buffered keyboard	913-C
2-sec. off	Yes	0
	No	1
Constant	Yes	2
	No	3

★

#913-D: 1. Drawer closing compulsory

2. Error mode

3. Key catch sound

1. Drawer closing compulsory	2. Error mode	3. Key catch sound	913-D
Non-compulsory	All lock error	Enable	0
		Disable	1
	Mis operation (One shot error)	Enable	2
		Disable	3
Compulsory	All lock error	Enable	4
		Disable	5
	Mis operation (One shot error)	Enable	6
		Disable	7

★

[JOB#914] ER-A440: MRS = 0100

ER-A450: MRS = 0100

#914-A: 1. Receipt issuing at no-sale

2. ☐ key separation from ☐ key for no sale function

1. Receipt issuing at no-sale	2. <input type="checkbox"/> key separation from <input type="checkbox"/> key for no sale function	914-A
Enable	Yes	0
	No	2
Disable	Yes	4
	No	6

★

#914-B: 1. No-sale after NON ADD code entry

1. No-sale after # entry	914-B
Disable	0
Enable	1

★



#914-C 1. Action to be taken when the machine is locked by the Receipt/Journal paper near end check

2. Void mode

1. Action to be taken when the machine is locked by the Receipt/Journal paper near end check	2. Void mode	914-C	
Unlocked by CL key	Enable	0	★
	Disable	2	
Enforcing of paper roll replacement	Enable	4	
	Disable	6	

#914-D: 1. CHECK CASHING Enable/Disable

1. CHECK CASHING	914-D	
Disable	0	★
Enable	2	

**[JOB#915] ER-A440: MRS = 0020**  
**ER-A450: MRS = 0020**

#915-A, B: Not used (Fixed at "00")

#915-C: 1. Paper near end check

2. ST (-), ST (%) as many times needed/operation only once

1. Paper near end check	2. ST (-), ST (%) as many times needed/ operation only once	915-C	
Yes	Unlimited	0	★
	Once only	2	
No	Unlimited	4	
	Once only	6	

**[JOB#916] ER-A440: MRS = 1000**  
**ER-A450: MRS = 1000**

#916-A: 1. Print format when text and amount overlaps each other REG mode

1. Print format when text and amount overlaps each other REG mode	916-A	
Truncate text	0	★
2 line print	1	

#916-B: 1. Finalization by charge (credit) when ST ≤ 0

2. Tendering which is smaller than the sales amount

1. Finalization by charge (credit) when ST ≤ 0	2. Tendering which is smaller than the sales amount	916-B	
Disable	Enable	0	★
	Disable	2	
Enable	Enable	4	
	Disable	6	

#916-C: 1. Negative merchandise subtotal  
2. Subtotal entry compulsory before tendering  
3. Subtotal entry before direct non-tendering finalization

1. Negative merchandise subtotal	2. Subtotal entry compulsory before tendering	3. Subtotal entry before direct non-tendering finalization	916-C	
Allow	Noncompulsory	Non-compulsory	0	★
		Compulsory	1	
	Compulsory	Non-compulsory	2	
		Compulsory	3	
Disallow	Non-compulsory	Non-compulsory	4	
		Compulsory	5	
	Compulsory	Non-compulsory	6	
		Compulsory	7	

#916-D: 1. Coupon PLU printing on X/Z report  
2. Net sales subtotal (NET1) printing on X/Z report  
3. CHECK change total printing on X/Z report

1. Print coupon PLU's on general report	2. Print net sales SBT (NET1) on general report	3. Print CHK CHANGE on general report	916-D	
Print	Print	Print	0	★
		Skip	1	
	Skip	Print	2	
		Skip	3	
Skip	Print	Print	4	
		Skip	5	
	Skip	Print	6	
		Skip	7	

**[JOB#917] NOT USED: ER-A440: MRS = 0000**  
**ER-A450: MRS = 0000**

**[JOB#918] ER-A440: MRS = 0000**  
**ER-A450: MRS = 0000**

#918-A: 1. Direct non-tendering finalization after previous tender entry

1. Direct non-tendering finalization after previous tender entry	918-A	
Disable	0	★
Enable	2	

#918-B: Not used (Fixed at "0")

#918-C: 1. Printing of Z1/Z2 counter in Z reports

1. Printing of Z1/Z2 counter in Z reports	918-C	
Yes	0	★
No	4	

#918-D: Not used (Fixed at "0")

**[JOB#919] ER-A440: MRS = 4000**  
**ER-A450: MRS = 4000**

#919-A, B: Not used (Fixed at "00")

#919-C: 1. Amount printing when PLU unit price is 0

1. Amount printing when PLU unit price is 0	919-C	
No	0	★
Yes	1	

919-D: 1. Conversion ST printing of native ST

1. Conversion SBTL print of native SBTL	919-D
Yes	0
No	4

★

**[JOB#920] NOT USED ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

**[JOB#921] NOT USED ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

**[JOB#922] NOT USED ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

**[JOB#923] NOT USED ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

**[JOB#924] NOT USED ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

**[JOB#925] NOT USED ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

**[JOB#926] ER-A440: MRS = 0400  
ER-A440: MRS = 0400**

#926-A: Not used (Fixed at "0")

#926-B: 1. Program reset at PGM2 mode

1. Program reset at PGM2 mode	926-B
Disable	0
Enable	4

★

#926-C, D: Not used (Fixed at "00")

**[JOB#927] ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

#927-A: 1. Rounding up of the units digit of amount

#927-B: 1. Rounding down of the units digit of amount

1. Rounding the units digit of amount	927-AB
Common destination	00
Netherlands/Switzerland	82
Norway	54

★

#927-C: 1. Difference memory (Difference between before-rounding and after-rounding)

2. Limit on the least significant digit in entering the amount on item

1. Difference memory	2. Limit on the least significant digit in entering the amount on item	927-C
No	Arbitrary	0
	0 only	1
	0 and 5 only	2
Yes	Arbitrary	4
	0 only	5
	0 and 5 only	6

★

#927-D: 1. Application of rounding

2. Limit on the least significant digit in entering the amount of payment

1. Application of rounding	2. Limit on the least significant digit in entering the amount of payment	927-D
Item & Payment	Arbitrary	0
	0 only	1
	0 and 5 only	2
Payment	Arbitrary	4
	0 only	5
	0 and 5 only	6

★

**[JOB#928] NOT USED: ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

**[JOB#929] NOT USED: ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

#929-A: Not Used (Fixed At "0")

#929-B: 1. Message LOGO print on Journal

1. Message LOGO print on Journal	929-B
No	0
Yes	2

★

#929-C: Not used (Fixed at "0")

#929-D: Taxable status of PLU which is set at "Non-taxable" by PGM.

1. Taxable status of PLU which is set at "Non-taxable" by PGM.	929-D
According to its associated department	0
Non taxable	2

★

**[JOB#980] ER-A440: MRS = 0000  
ER-A450: MRS = 0000**

#918-A: Not used (Fixed at "0")

#980-B: 1. Total amount rounding when a transaction is finalized directly by CHECK or CREDIT key (For Australia)

\* This selection is not effective at Manual Tax 1-6 system.

1. Total amount rounding	980-B
Yes (Rounding)	0
No (Not rounding)	2

★

#980-C: Not used (Fixed at "0")

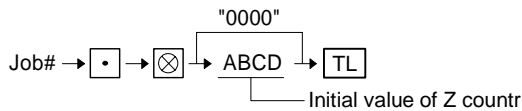
#980-D: 1. VAT/TAX assignment print

1. VAT/TAX assignment print	980-D
Print	0
Not	2

★

**[JOB#930~ 939] ER-A440: MRS = 0000**  
**ER-A450: MRS = 0000**

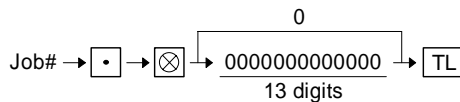
RESET REPORT COUNTER



JOB #	Function
930	Z1 report counter
932	Clerk Z1 report counter
933	Hourly Z1 report counter
934	PLU Z1 report counter
935	Cashier Z1 report counter
937	Z2 report counter
939	31 day daily net Z2 report counter

**[JOB#942, 943] ER-A440: MRS = 00000000000000**  
**ER-A450: MRS = 00000000000000**

GT COUNTER PRESETTING

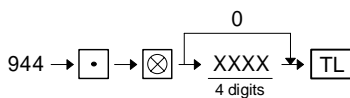


JOB #	Function
942	GT2 (Positive GT)
943	GT3 (Negative GT)

Note: GT1 is obtained by calculation  
Equation:  $GT1 = GT2 - GT3$

**[JOB#944] ER-A440: MRS = 0000**  
**ER-A450: MRS = 0000**

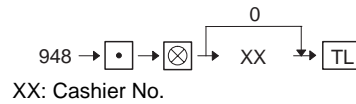
PGM1/2 secret code presetting



NOTE: When the secret code "0" is programmed, the secret code entry is inhibited.

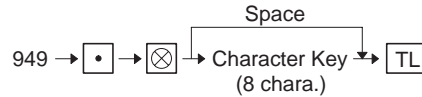
**[JOB#948] ER-A440: MRS = 00**  
**ER-A450: MRS = 00**

PROGRAMMING OF TRAINING CASHIER NO.



**[JOB#949] ER-A440: MRS = "TRAINING"**  
**ER-A450: MRS = "TRAINING"**

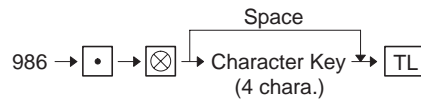
THE TRAINING MODE'S TITLE



Characters can be entered by using character keys or numeric keys.  
Please refer to section 4.

**[JOB#986] ER-A440: MRS = " \* "**  
**ER-A450: MRS = " \* "**

Domestic currency symbol programming



Characters can be entered by using character keys or numeric keys.  
Please refer to section 4.

This symbol is printed with (+) amount of domestic currency. The programmed characters is printed at left side of amount.

Ex) Case of "DM":

| DEPT.01 DM 1.00 |  
|  
Programmed symbol

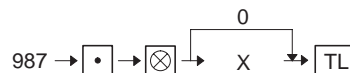
If some space characters are programmed at the left side of symbol (like " \* "), they are not counted as the number of character of the currency symbol. (In case of " DM", the number of character is 2.)

Ex) Case of " DM": (The currency symbol means "DM")

| DEPARTMENT01 DM 10.00 |  
|  
Programmed symbol

**[JOB#987] ER-A440: MRS = 0**  
**ER-A450: MRS = 0**

Text Changing (To Default text)



X: 0 = English text

1 = German text

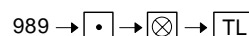
When this job is executed, below texts are set as default data.

(a) Function text

(b) Each message text (LOGO, etc..)

**[JOB#989]**

RESETTING OF ALL COUNTER AND TOTALIZER



\* All counter, totalizer, all GTs, and all Z counter are reset.

Free key layout (Except for department keys and direct PLU keys.)



- Programming of the keys to be dept keys or direct PLU keys on the keyboard.
- Key No. is assigned to each key which is supposed to be dept. Key or direct PLU key by depressing the key after entering the key No.
- Those keys programmed by this job No. will be dept. keys if dept. code is assigned, and will be direct PLU keys if PLU code is assigned in the PGM2 mode.

Key No.	KEY	KEY TEXT
1	0 KEY	0 KEY
2	1 KEY	1 KEY
3	2 KEY	2 KEY
4	3 KEY	3 KEY
5	4 KEY	4 KEY
6	5 KEY	5 KEY
7	6 KEY	6 KEY
8	7 KEY	7 KEY
9	8 KEY	8 KEY
10	9 KEY	9 KEY
11	00 KEY	00 KEY
12	000 KEY	000KEY
13	DECIMAL POINT	. KEY
14	CLEAR	CLEAR
15	⊗	×
16	SUB TOTAL	SBTL
17	TOTAL	TOTAL
18	#	#
19	NO SALE	NS
20	PLU	PLU
21	G. C. COPY	GCCOPY
22	PRINT (only ER-A440)	VP
23	RCPT	RCPT
24	VOID	VOID
25	REFUND	RFND

Key No.	KEY	KEY TEXT
26	%1	%1
27	%2	%2
28	%3	%3
29	%4	%4
30	(-)1	(-)1
31	(-)2	(-)2
32	(-)3	(-)3
33	(-)4	(-)4
34	VAT	VAT
35	AUTO	AUTO
36	AUTO2	AUTO2
37	AUTO3	AUTO3
38	AUTO4	AUTO4
39	AUTO5	AUTO5
40	AUTO6	AUTO6
41	AUTO7	AUTO7
42	AUTO8	AUTO8
43	AUTO9	AUTO9
44	AUTO10	AUTO10
45	CASH2	CA2
46	CHECK	CHECK
47	CHECK2	CHECK2
48	CHECK3	CHECK3
49	CHECK4	CHECK4
50	CREDIT1	CR1
51	CREDIT2	CR2
52	CREDIT3	CR3
53	CREDIT4	CR4
54	EX1	EX 1
55	EX2	EX 2
56	EX3	EX 3
57	EX4	EX 4
58	RA	RA
59	RA2	RA2
60	PO	PO
61	PO2	PO2
62	½	1/2 KEY
63	AMT	AMT
64	VAT SHIFT	VAT SF
65	DIFFER ST	DIF ST
66	CASHIER NO.	CASH #
67	CLERK NO.	CLK #
999	INHIBIT	

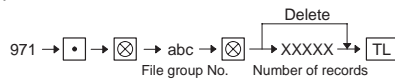
									38	44	50	56	62	68
									37	43	49	55	61	67
↑ R	↑ J													
04	08	12	16	20	24	28	32	36	42	48	54	60	66	
03	07	11	15	19	23	27	31	35	41	47	53	59	65	
02	06	10	14	18	22	26	30	34	40	46	52	58	64	
01	05	09	13	17	21	25	29	34	39	45	51	57	63	

1 - 12

## [JOB#971]

SRV FILE PROGRAMMING. (File creation/deletion and change of record count or block count)

Key operation



Group No.	File name	Type	* File table No. (Create/Erase)
1	Dept.	1	1, 2, 4, 6
2	Dept Text (8chra.)	0	3
3	Dept Text (12chra.)	0	4
4	Department Text (16chra.)	0	5
5	PLU	1	8, 9, 11, 13
6	PLU Text (8chra.)	0	10
7	PLU Text (12chra.)	0	11
8	PLU Text (16chra.)	0	12
9	Link PLU	1	15
10	Cashier	1	19, 20, 21, 22, 23
11	Clerk	1	29, 30, 31, 32, 33, 35, 36, 37, 38
12	Hourly	1	39, 40
13	Daily net	1	41, 42
14	Reg. buffer	1	43
15	Overlapped Cashier	0	44
16	Term Dept.	0	7
17	Term PLU	0	14
18	Term Transaction	0	18
19	Term Cashier transaction	0	24
20	Term Clerk Trans.	0	34
21	All of term files	0	7, 14, 18, 24, 34

Type = 0 ; Create/Erase only

Type = 1 ; Create/Erase and Increase/decrease the number of Records or blocks.

\* : The files which are created or erased by the entry of group No.

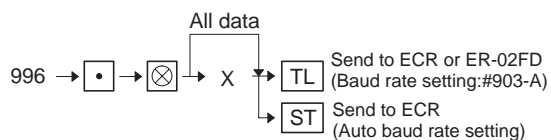
## File table

Table No.	File name		RECORD			BLOCK			Label size	Data size
			MRS	Max.	#1	MRS	Max.	#2		
1	Dept.	PRESET	20	50		1	1		1	6
2		PRICE	20	50	(1)	1	1		0	3
3		TEXT (8chra.)	0	50	(1)	0	1		0	8
4		TEXT (12chra.)	20	50	(1)	1	1		0	12
5		TEXT (16chra.)	0	50	(1)	0	1		0	16
6		DAILY	20	50	(1)	1	1		0	9
7		TERM	20	50	(1)	1	1		0	9
8	PLU	PRESET	1000	***		1	1		5	6
9		PRICE	1000	***	(8)	1	1		0	3
10		TEXT (8chra.)	0	***	(8)	0	1		0	8
11		TEXT (12chra.)	1000	***	(8)	1	1		0	12
12		TEXT (16chra.)	0	***	(8)	0	1		0	16
13		DAILY	1000	***	(8)	1	1		0	9
14		TERM	0	***	(8)	0	1		0	9
15	Link PLU		0	***		0	1		3	15
16	Transaction	LABEL	76	76		1	1		2	0
17		DAILY	76	76	(16)	1	1		0	8
18		TERM	76	76	(16)	1	1		0	8
19	Cashier	PRESET	4	99		1	1		1	3
20		FLAG	4	99	(19)	1	1		0	2

Table No.	File name	RECORD			BLOCK			Label size	Data size
		MRS	Max.	#1	MRS	Max.	#2		
21	TEXT	4	99	(19)	1	1		0	8
22	Cashier transaction LABEL	41	41		4	99	(19)	2	0
23	DAILY	41	41	(22)	4	99	(19)	0	8
24	TERM	41	41	(22)	4	99	(19)	0	8
25	Reset Csr Transaction LABEL	41	41		1	1		2	0
26	DAILY	41	41	(25)	1	1		0	8
27	Total cashier (Buffer) LABEL	41	41		1	1		2	0
28	TOTAL	41	41	(27)	1	1		0	8
29	Clerk PRESET	0	99		0	1		1	3
30	FLAG	0	99	(29)	0	1		0	2
31	TEXT	0	99	(29)	0	1		0	8
32	Clerk transaction LABEL	0	11		0	99	(29)	2	0
33	DAILY	0	11	(32)	0	99	(29)	0	8
34	TERM	0	11	(32)	0	99	(29)	0	8
35	Reset CLK Transaction LABEL	0	11		0	1		2	0
36	DAILY	0	11	(35)	0	1		0	8
37	Total CLK (Buffer) LABEL	0	11		0	1		2	0
38	TOTAL	0	11	(37)	0	1		0	8
39	Hourly LABEL	48	48		1	1		1	0
40	DAILY	48	48	(39)	1	1		0	8
41	Daily net LABEL	32	32		1	1		3	0
42	TOTAL	32	32	(41)	1	1		0	8
43	Reg. buffer	80	255		1	1		0	38
44	Overlapped Cashier	0	255	(43)	0	99	(20)	0	38

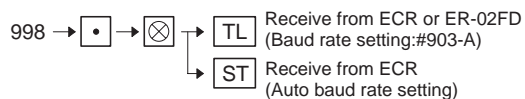
**[JOB#996, 998] RAM DATA BACKUP function  
(ECR↔ ECR, ECR↔ ER-02FD)**

**[JOB#996] RAM data send**



X : SSP = 0  
 Standard RAM (64KB) = 1  
 Optional RAM: ER-03RA (512KB) = 2

**[JOB#998] RAM data receive**

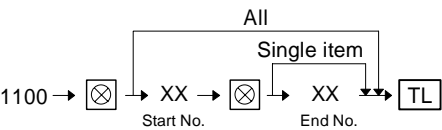


CHAPTER 2. PROGRAM (PGM2/PGM1) MODE

1.Reading of the PGM mode program

[JOB#1100]: DEPT reading

Key operation

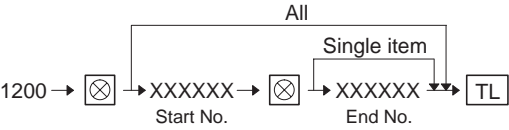


YOUR RECEIPT THANK YOU		
04/03/98 15:12	01	
111111 #0076	HILL	
#1100 *PGM2*		
	01-10	
D01	10.00	
DPT. 01	G01	
0000003	COL17	
D02	T123456	20.00
DPT. 02	G02	
0000003	COL17	
D03	T 6	-30.00
DPT. 03	G10	
0000003	C3L17	
D04	T 5	40.00
DPT. 04	G11	
0000003	C4L17	
D05	T 3	-50.00
DPT. 05	G12	
0000003	C5L17	
D06		60.00
DPT. 06	G13	
0000003	COL17	
D07		-70.00
DPT. 07	G14	
0000003	COL17	
D08		80.00
DPT. 08	G01	
0000003	COL17	
D09		90.00
DPT. 09	G01	
0000003	COL17	
D10		100.00
DPT. 10	G01	
0000003	COL17	

- Header graphical logo
- Date/Time/Cashier No.
- Machine No./Consecutive No./Cashier name
- JOB#/Mode title
- Range
- Dept.code/Price
- Text/Group No.
- Programming:JOB#2110/Commision group No./HALO
- Dept.code/Taxable/Price
- Dept.code/Taxable/Sign/Price

[JOB#1200]: PLU reading

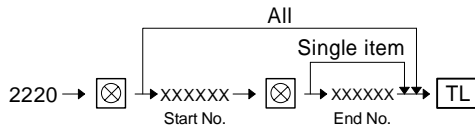
Key operation



YOUR RECEIPT THANK YOU		
04/03/98 15:12	01	
111111 #0078	HILL	
#1200 *PGM2*		
	000001-000010	
P000001 (01)	/00	
T123456	100.00	
PL000001	C1	
002		
P000002 (01)	/00	
T123456	-200.00	
PL000002	C2	
002		
P000003 (02)	/00	
	-300.00	
PL000003	C3	
002		
P000004 (02)	/00	
T1	400.00	
PL000004	C4	
002		
P000005 (03) L	/00	
	500.00	
PL000005	C5	
002		
P000006 (03) L	/00	
	600.00	
PL000006	C6	
002		
P000007 (04)	/00	
	700.00	
PL000007	C7	
002		
P000008 (04)	/00	
	800.00	
PL000008	C8	
002		
P000009 (05)	/00	
	900.00	
PL000009	C9	
002		
P000010 (05)	/00	
	1000.00	
PL000010	C1	
002		

- Header graphical logo
- Date/Time/Cashier No.
- Machine No./Consecutive No./Cashier name
- JOB#/Mode title
- Range
- PLU code/Associated Dept. code/Base Q'ty
- Taxable/Price
- Text/Commision group No.
- Programming:JOB#2210
- Taxable/Sign/Price
- PLU code/Associated Dept. code/Type:L=Link PLU, (space)=Normal PLU/Base Q'ty

### Key operation



YOUR RECEIPT  
THANK YOU

04/03/98 15:12 01  
111111 #0080 HILL

#2220 \*PGM2\*

000001-999999

P000005 L P000010  
P000011  
P000012  
P000013  
P000014  
P000006 L P000020  
P000021  
P000022  
P000023  
P000024

- Header logo
- Date/Time/Cashier No.
- Machine No./Consecutive No./  
Cashier name
- JOB#/Mode title
- Range
- PLU code/Linked PLU code  
(Max.5)

### Key operation

1300 →  → 

# YOUR RECEIPT

## THANK YOU

04/03/98 15:15 01  
 111111 #0086 HILL

#1300 \*PGM2\*

F001 (→) 1	
S	-100.00
	L17
F002 (→) 2	
I	-0.00
	L17
F005 %1	
S	-50.00%
	L100.00%
F006 %2	
I	-30.00%
	L100.00%
F010 TAX1 ST	
F011 TAX2 ST	
F012 TAX3 ST	
F013 TAX4 ST	
F014 TAX5 ST	
F015 TAX6 ST	
F016 VAT 1	
F017 VAT 2	
F018 VAT 3	
F019 VAT 4	
F020 VAT 5	
F021 VAT 6	
F022 NET1	
F023 NET2	
F024 CP PLU	
F025 REFUND	
F026 S	
F027 S MODE	
F028 MGR S	
F029 SBT L S	
F030 HASH S	
F031 HASH RF	
F032 VAT SFT	
F033 TAX DELE	
F035 NO SALE	
F037 ***RA	L18
F039 ***PO	L18
F042 CASH	L18
	00000000
F044 CHECK	L18
	00000000
F045 CHECK2	L18
	00000000
F048 CREDIT1	L18
	00000000
F049 CREDIT2	L18
	00000000

- Header graphical logo
- Date/Time/Cashier No.
- Machine No./Consecutive No./Cashier name
- JOB#/Mode title
- Function No./Text
- Type:S=Subtotal, I=Item/Sign/Amount
  - HALO
- Type:S=Subtotal, I=Item/Sign/Rate
- Function No./Text
- Function No./Text/HALO
- Programming:JOB#2320



**F050 CREDIT3** L18  
 0000000  
**F052 EXCH1** JP¥  
 103.000000  
**F053 EXCH2**  
 109.000000  
**F059 \*\*\*\*CID**  
 9999999.99  
**F061 CA/CH ID**  
**F062 CHW/CG**  
 999999.99  
**F063 GUEST**  
**F064 ORDER TL**  
**F065 PAID TL**  
**F066 DOM. CUR1**  
**F067 DOM. CUR2**  
**F070 \*CH ID**  
**F071 COM. SAL1**  
 2.50%  
**F072 COM. SAL2**  
 3.50%  
**F073 COM. SAL3**  
 4.50%  
**F074 COM. SAL4**  
 0.00%  
**F075 COM. SAL5**  
 5.50%  
**F076 COM. SAL6**  
 0.00%  
**F077 COM. SAL7**  
 0.00%  
**F078 COM. SAL8**  
 0.00%  
**F079 COM. SAL9**  
 0.00%  
**F080 NON COM.**  
**F081 \*DEPT TL**  
**F082 DEPT (-)**  
**F083 \*HASH TL**  
**F084 HASH (-)**  
**F085 \*BTTL TL**  
**F086 BTTL (-)**  
**F087 NET 1**  
**F088 NET 2**  
**F089 NET 3**  
**F090 NET 4**  
**F091 NET 5**  
**F092 NET 6**  
**F093 SUBTOTAL**  
**F094 MDSE ST**  
**F096 \*\*\*TOTAL**  
**F097 CHANGE**  
**F098 ITEMS**  
**F099 PLU ST**  
**F100 COPY**  
**F102 AVE.**  
**F103 GROUP01**  
**F104 GROUP02**  
**F105 GROUP03**  
**F106 GROUP04**  
**F107 GROUP05**  
**F108 GROUP06**  
**F109 GROUP07**

— Function No./Text/Currency  
symbol for exchange

— Rate

— Sentinel

— Commision rate

**F110 GROUP08**  
**F111 GROUP09**  
**F115 O-P**  
**F116 TTL TAX**  
**F117 NET**  
**F118 COM. AMT1**  
**F119 COM. AMT2**  
**F120 COM. AMT3**  
**F121 COM. AMT4**  
**F122 COM. AMT5**  
**F123 COM. AMT6**  
**F124 COM. AMT7**  
**F125 COM. AMT8**  
**F126 COM. AMT9**  
**F127 COM. TTL**  
**F128 DEPT**  
**F129 GROUP**  
**F130 PLU**  
**F131 TRANS.**  
**F132 TL-ID**  
**F133 CLERK**  
**F134 CASHIER**  
**F135 HOURLY**  
**F136 DAILY**  
**F137 ZERO SAL**  
**F138 CATEGORY**  
**F139 SALES**

[JOB#1400]

1400 → [X] → [TL]

YOUR RECEIPT  
THANK YOU

04/03/98 15:15 01  
111111 #0088 HILL

#1400 \*PGM2\*

01CLK# KUMAGAI 01  
02CLK# HAKKINEN 02  
03CLK# 03  
04CLK# 04  
05CLK# 05

Header graphical logo

Date/Time/Cashier No.

Machine No./Consecutive No./  
Cashier name

JOB#/Mode title

Clerk No./Clerk name/  
Clerk code

[JOB#1500]: CASHIER READING REP.

Key operation

1500 → [X] → [TL]

YOUR RECEIPT  
THANK YOU

04/03/98 15:16 01  
111111 #0090 HILL

#1500 \*PGM2\*

01CSR# 01  
HILL 0000D1  
02CSR# 02  
BERGER 0000D1  
03CSR# 03  
0000D1  
04CSR# 04  
0000D1

Header graphical logo

Date/Time/Cashier No.

Machine No./Consecutive No./  
Cashier name

JOB#/Mode title

Cashier No./Cashier code

Cashier name/Programming:  
JOB#2510/Drawer No.

[JOB#2600]: READING OF OTHER

Key operation

2600 → [X] → [TL]

SHARP  
PRESENTS THE  
ER-A450  
SHARP  
IS THE  
BEST

04/03/98 15:19 01  
111111 #0094 HILL

#2600 \*PGM2\*

#2614

SHARP  
PRESENTS THE  
ER-A450  
SHARP  
IS THE  
BEST

#2615 00  
#2616

01 00000000  
02 00000000  
03 00000000  
04 00000000  
05 00000000  
06 00000000  
07 00000000  
08 00000000  
09 00000000  
10 00000000  
11 00000000  
12 00000000  
13 00000000

Header logo

Date/Time/Cashier No.

Machine No./Consecutive No./  
Cashier name

JOB#/Mode title

Programming:JOB#2614

Programming:JOB#2615

For ER-A440:

#2614

SHARP  
PRESENTS THE  
ER-A440

#2615 10

#2617 000  
#2619 0 00  
#2620

00  
10  
20  
000001-000010

#2630 1111  
#2631 2222  
#2632 3333  
#2680 0  
#2690

1 0000  
2 0000  
3 0000

Programming:JOB#2617

Programming:JOB#2619

Programming:JOB#2620

Programming:JOB#2630

Programming:JOB#2631

Programming:JOB#2632

Programming:JOB#2680

Programming:JOB#2690

[JOB#2900]: AUTO KEY READING

Key operation

2900 → [X] → [TL]

SHARP  
PRESENTS THE  
ER-A450  
SHARP  
IS THE  
BEST

04/03/98 15:20 01  
11111 #0099 HILL

#2900 \*PGM2\*

#01

1 KEY  
00 KEY  
00 KEY  
DO1

#02

5 KEY  
00 KEY  
00 KEY  
0 KEY  
TOTAL

#03

----

#04

----

#05

----

#06

----

#07

----

#08

----

#09

----

#10

----

Header logo

Date/Time/Cashier No.

Machine No./Consecutive No./  
Cashier name

JOB#/Mode title

Auto key No.

Programming:JOB#2900

Not programmed

[JOB#2700]: TAX TABLE READING REP.

Key operation

2700 → [X] → [TL]

SHARP  
PRESENTS THE  
ER-A450  
SHARP  
IS THE  
BEST

04/03/98 15:20 01  
11111 #0097 HILL

#2700 \*PGM2\*

TAX1 10.0000%  
0.00

TAX2 20.0000%  
10.00

TAX3 30.0000%  
0.00

TAX4 40.0000%  
0.00

TAX5 50.0000%  
0.00

TAX6 60.0000%  
0.00

Header logo

Date/Time/Cashier No.

Machine No./Consecutive No./  
Cashier name

JOB#/Mode title

Tax No./Rate

Lower tax limitation

[JOB#2119]: DIRECT KEY READING REP.

Key operation

2119 →  → 

YOUR RECEIPT

THANK YOU

04/03/98 15:14 01

111111 #0084 HILL

#2119 \*PGM2\*

001 D01

002 D02

003 D03

004 D04

005 D05

006 D06

007 D07

008 D08

009 D09

010 D10

011 D11

012 D12

013 D13

014 D14

015 D15

Header graphical logo

Date/Time/Cashier No.

Machine No./Consecutive No./Cashier name

JOB#/Mode title

Key No./Dept.code (JOB#2119)

016	D16
017	D17
018	D18
019	D19
020	D20
021	----
022	----
023	----
024	----
025	----
026	----
027	----
028	----
029	----
030	P000001
031	P000002
032	P000003
033	P000004
034	P000005
035	----
036	----
037	----
038	----
039	----
040	----
041	----
042	----
043	----
044	----
045	----
046	----
047	----
048	----
049	----
050	----
051	----
052	----
053	----
054	----
055	----
056	----
057	----
058	----
059	----
060	----
061	----
062	----
063	----
064	----
065	----
066	----
067	----
068	----

Key No./Inhibit

Key No./PLU code(JOB#2119)

## [JOB#2990]: THERMAL PRINTER REPORT (only ER-A450)

2990 → ☒ → TL

SHARP

PRESENTS THE

ER-A450

SHARP

IS THE

BEST

04/03/98 15:20 01

111111 #0101 HILL

#2990 \*PGM2\*

1 0 50

10 : 0123456789ABCDEF

20 : 0123456789ABCDEF

30 : 0123456789ABCDEF

40 : 0123456789ABCDEF

50 : 0123456789ABCDEF

60 : 0123456789ABCDEF

70 : 0123456789ABCDEF

80 : 0123456789ABCDEF

90 : 0123456789ABCDEF

Header logo

Date/Time/Cashier No.

Machine No./Consecutive No./  
Cashier name

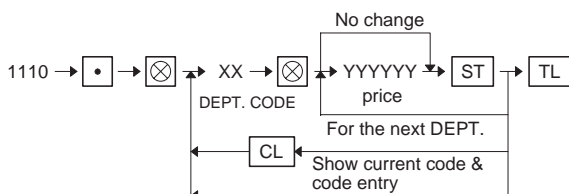
JOB#/Mode title

Programming:JOB#2990

## 2. Programming

### [JOB#1110]

#### PROGRAMMING OF DEPT. PRICE



XX: DEPT-CODE = 01 ~ 50

YYYYYY: PRICE = 0 ~ 999999

Preset price is max. 6 digits.

If a price is set for a department which amount entry type is "INHIBIT" or "OPEN", its amount entry type is set as below automatically.

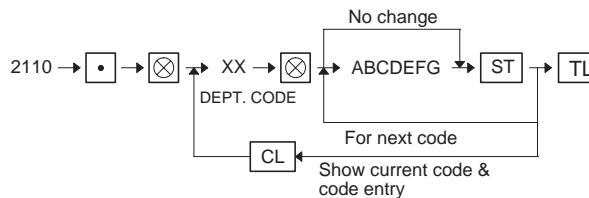
"PRESET" ← "INHIBIT"

"OPEN&PRESET" ← "OPEN"

MRS = 000000

### [JOB#2110]

#### PROGRAMMING OF DEPT. FUNCTION



XX: DEPT. code = 01 ~ 50

A: Not used (Fixed at "0")

B (ER-A440):	Item validation printing	B
	Non compulsory	0
	Compulsory	1

B (ER-A450): Not used (Fixed at "0")

C, D: Not used (Fixed at "00")

E:	SICS Function	E
	Normal	0
	Single item cash sale	1
	Single item finalize	2

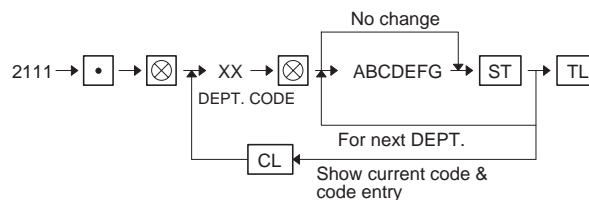
F: Not used (Fixed at "0")

G:	Amount entry type	G
	Inhibited	0
	Open	1
	Preset	2
	Open and preset	3

MRS = 0000001

### [JOB#2111]

#### DEPT. TAX STATUS PROGRAMMING



XX: DEPT. CODE = 01 ~ 50

A: Not used (Fixed at "0")

B:	Taxable 6	B
	Non taxable	0
	Taxable	1

C:	Taxable 5	C
	Non taxable	0
	Taxable	1

D:	Taxable 4	D
	Non taxable	0
	Taxable	1

E:	Taxable 3	E
	Non taxable	0
	Taxable	1

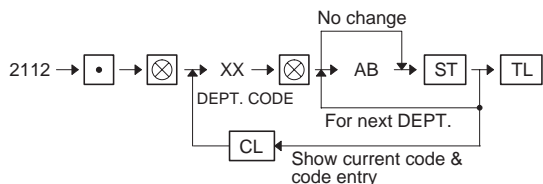
F:	Taxable 2	F
	Non taxable	0
	Taxable	1

G:	Taxable 1	G
	Non taxable	0
	Taxable	1

MRS = 0000000

## [JOB#2112]

DEPT. HALO (limit) preset



XX: DEPT. CODE = 01 ~ 50

A: Mantissa (HALO) = 0 ~ 9

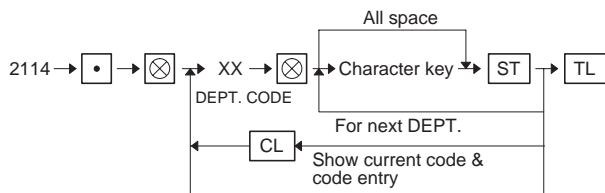
B: Exponent (HALO) = 0 ~ 7

\* Items A and B indicate  $A \times 10^B$ . Any amount below that value is enable within 9999999.

MRS = 17

## [JOB#2114]

DEPT. TEXT PROGRAMMING



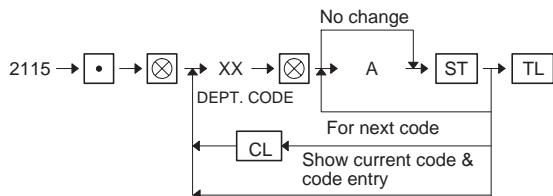
XX: DEPT. CODE = 01 ~ 50

Characters can be entered by using character keys or numeric keys. Please refer to section 4.

MRS = DPT. XX

## [JOB#2115]

COMMISSION GROUP PROGRAMMING

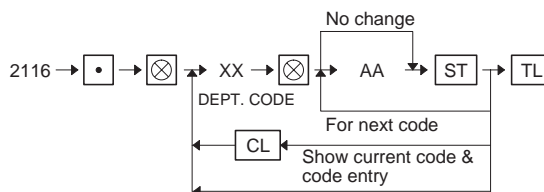


XX: DEPT. CODE = 01 ~ 50

A: Group No. = 0~9

## [JOB#2116]

PROGRAMMING OF DEPT. GROUP



XX: DEPT. code = 01 ~ 50

AA: Group No. = 1 ~ 14

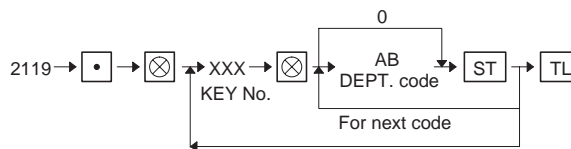
Group No.	Group name
1~9	Plus department
10	Minus department
11	Plus HASH department
12	Minus HASH department
13	Plus BR department
14	Minus BR department

MRS = 01

A selection of the group "Hash" and "BR" are inhibited when the hash and Bottle return function is programmed as disabled in SRV mode.

## [JOB#2119]

DEPARTMENT CODE DEFINITION FOR DIRECT DEPT. KEYS



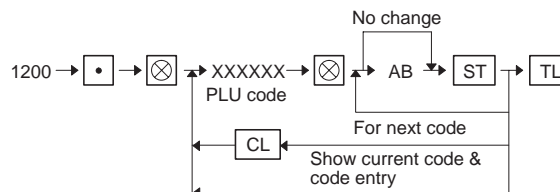
DEPT. code is assigned to the key no. which has been programmed in JOB#951 programming.

XXX: Key No. = 001 to 068

AB: DEPT. CODE = 01 ~ 50

## [JOB#1200]

Creating/assigning PLUs and the associated departments.



XXXXXX: PLU code = 01 ~ 999999

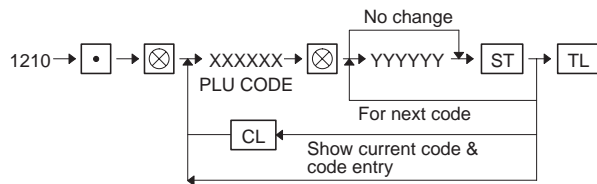
AB: DEPT. code = 01 ~ 50

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

MRS = 01

## [JOB#1210]

### PRICE PROGRAMMING FOR PLUS



XXXXXX: PLU CODE = 1 ~ 999999

YYYYYY: Amount = 0 ~ 999999

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

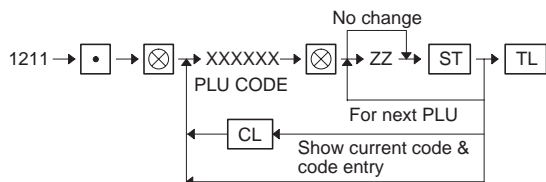
If a price is set for a department which amount entry type is "INHIBIT" or "OPEN", its amount entry type is set as below automatically.

"PRESET" ← "INHIBIT"  
"OPEN&PRESET" ← "OPEN"

MRS = 000000

## [JOB#1211]

### PLU BASE Q'TY PROGRAMMING



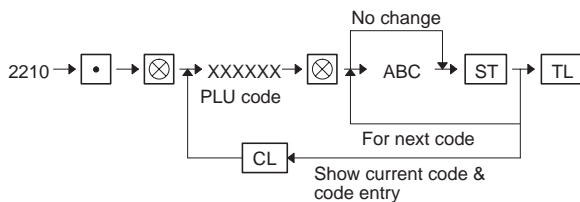
XXXXXX: PLU code = 1 ~ 999999

ZZ: Base quantity = 00 ~ 99

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

## [JOB#2210]

### PLU function programming



XXXXXX: PLU code = 1~999999

A, B: Not used (Fixed at "00")

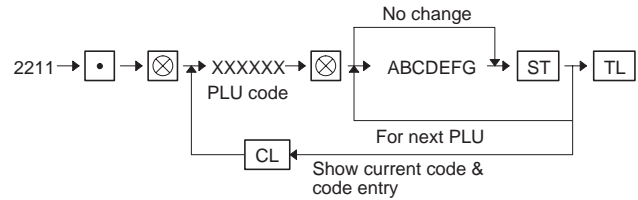
C:	Amount entry type	C
	Inhibited	0
	Open	1
	Preset	2
	Open and preset	3
	Delete	4

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

MRS = 002

## [JOB#2211]

### PLU TAX STATUS PROGRAMMING



XXXXXX: PLU code

= 1 ~ 999999

A:	Sign	A
	+	0
	-	1

B:	Taxable 6	B
	Non taxable	0
	Taxable	1

C:	Taxable 5	C
	Non taxable	0
	Taxable	1

D:	VAT 1	D
	Non taxable	0
	Taxable	1

E:	Taxable 3	E
	Non taxable	0
	Taxable	1

F:	Taxable 2	F
	Non taxable	0
	Taxable	1

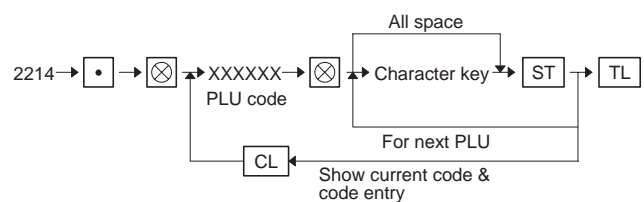
G:	Taxable 1	G
	Non taxable	0
	Taxable	1

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

MRS = 000000

## [JOB#2214]

### PLU TEXT PROGRAMMING



XXXXXX: PLU CODE = 1 ~ 999999

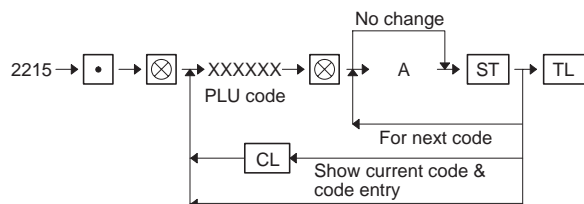
Characters can be entered by using character keys or numeric keys.

Please refer to section 4.

MRS = PLXXXXXX

## [JOB#2215]

### COMMISSION GROUP PROGRAMMING



XXXXXX: PLU code = 1 ~ 999999

Group No. = 0 ~ 9

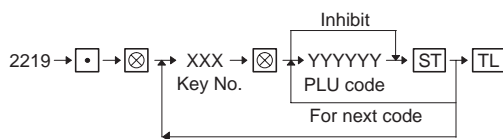
A:

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

MRS = 0

## [JOB#2219]

### PLU CODE DEFINITION FOR DIRECT PLU KEYS



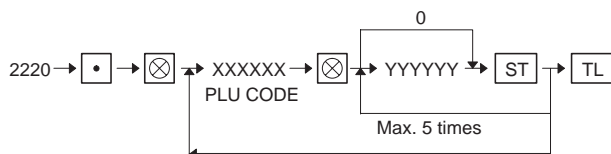
XXX: Key No. = 001 to 068

YYYYYY: PLU code = 1~999999

PLU code is assigned to the key No. which has been programmed in JOB#951 programming.

## [JOB#2220]

### LINKED PLU PROGRAMMING



XXXXXX: PLU code = 1 ~ 999999

YYYYYY: PLU code = 1 ~ 999999

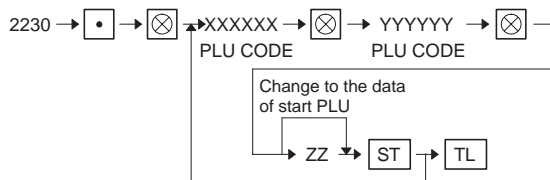
When the "ST" key is pressed without entering any number as the first PLU code (YYYYYY), the previous data is cleared.

PLU code should already be defined when they are used in programming here.

MRS = 0

## [JOB#2230]

### PLU CODE PROGRAMMING (range)



XXXXXX: Start PLU code = 1 ~ 999999

YYYYYY: End PLU code = 1 ~ 999999

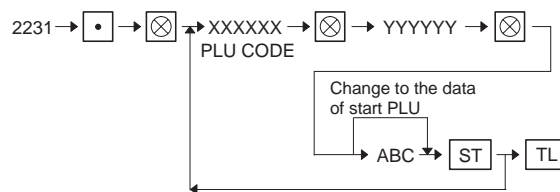
ZZ: Dept. code = 1~50

It changes the data of PLU records only which exists in PLU file in the

entered range of PLU code.

## [JOB#2231]

### PLU function programming (RANGE)



XXXXXX: Start PLU code = 1~999999

YYYYYY: End PLU code = 1~999999

A, B: Not used (Fixed at "00")

C:

Amount entry type	C
Inhibited	0
Open	1
Preset	2
Open and preset	3
Delete	4

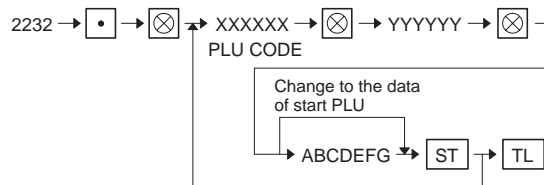
It changes the data of all PLU records in the entered range of PLU code.

If the record of entered range of PLU code is not in PLU file, it will be created in PLU file.

MRS = 0

## [JOB#2232]

### PLU TAX STATUS PROGRAMMING (RANGE)



XXXXXX: Start PLU code = 1 ~ 999999

YYYYYY: End PLU code = 1 ~ 999999

A:

Sign	A
+	0
-	1

B:

Taxable 6	B
Non taxable	0
Taxable	1

C:

Taxable 5	C
Non taxable	0
Taxable	1

D:

VAT 1	D
Non taxable	0
Taxable	1

E:

Taxable 3	E
Non taxable	0
Taxable	1



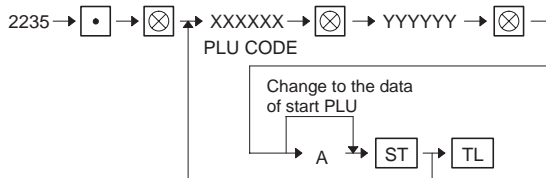
F:	Taxable 2	F
	Non taxable	0
	Taxable	1

G:	Taxable 1	G
	Non taxable	0
	Taxable	1

It changes the data of PLU records only which exists in PLU file in the entered range of PLU code.

### [JOB#2235]

Commission group programming (RANGE)



XXXXXX: Start PLU code = 1~999999

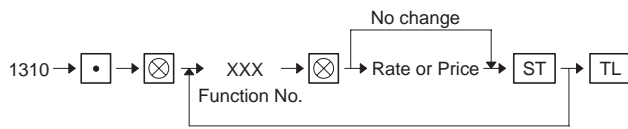
YYYYYY: End PLU code = 1~999999

A: Group No. = 0~9

It changes the data of PLU records only which exists in PLU file in the entered range of PLU code.

### [JOB#1310]

RATE PROGRAMMING



XXX: Function No.

(Rate or Price)

YYYYYY: Price for (-)

YYY.YY: Rate for %

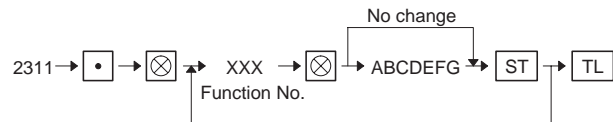
YYY.YYYYYY: Rate for EXCHANGE

Function No.	Function	Entry range	Remarks
1	(-)1	0 to 999999	(-) unit price
2	(-)2		
3	(-)3		
4	(-)4		
5	%1	0 to 100.00	% rate
6	%2		
7	%3		
8	%4		
52	Exchange 1	0 to 999.999999	Rate
53	Exchange 2		
54	Exchange 3		
71	Commission 1	0 to 999.99	Rate
72	Commission 2		
73	Commission 3		
74	Commission 4		
75	Commission 5		
76	Commission 6		
77	Commission 7		
78	Commission 8		
79	Commission 9		

MRS = 0

### [JOB#2311]

MISC KEY PROGRAMMING 1



XXX: Function No.

Function No.	Function
1	(-)1
2	(-)2
3	(-)3
4	(-)4
5	%1
6	%2
7	%3
8	%4

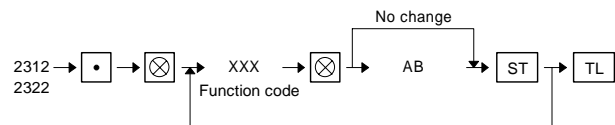
A:	Sign	A
	+	0
	-	1

B, C, D, E, F, G: Not used (Fixed at "000000")

MRS = 100000

### [JOB#2312, 2322]

HALO PROGRAMMING



XXX: Function No.

A: Mantissa (0 to 9)

B: Exponent (0 to 7) for (-)/(0 to 8) for RA/PO and each media.

JOB#	Function No.	Function	Remarks
2312	1	(-)1	Item B is specifiable within the range from 0 to 7.
	2	(-)2	
	3	(-)3	
	4	(-)4	
	37	RA	Item B is specifiable within the range from 0 to 8.
	38	RA2	
	39	PO	
	40	PO2	
2322	42	CA1	Item B is specifiable within the range from 0 to 8.
	43	CA2	
	44	CHK1	
	45	CHK2	
	46	CHK3	
	47	CHK4	
	48	CR1	
	49	CR2	
	50	CR3	
	51	CR4	

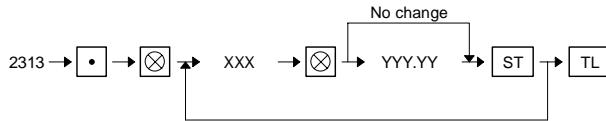
Entry range, system: A × 10<sup>B</sup>

MRS = 17 ((-)1~(-)4)

18 (Others)

## [JOB#2313]

### MISCELLANEOUS KEY PROGRAMMING (% HALO)



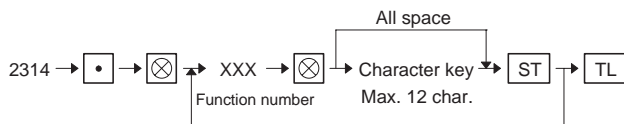
XXX: Function No.

YYY.YY: % HALO

Function No.	Function	Remarks
5	%1	
6	%2	
7	%3	
8	%4	

## [JOB#2314]

### TEXT PROGRAMMING FOR MISC KEYS



XXX: FUNCTION CODE

Characters can be entered by using character keys or numeric keys. the key entry sequence for entering one character by numeric keys is as follows:

XXX → 00 key      XXX: CHARACTER CODE (3DIGITS)

Please refer to section 4.

F-NO.	FUNCTION	DEFAULT TEXT
1	(-)1	(-) 1
2	(-)2	(-) 2
3	(-)3	(-) 3
4	(-)4	(-) 4
5	%1	%1
6	%2	%2
7	%3	%3
8	%4	%4
9	DIFFER	DIFFER
10	TAXABLE1 ST	TAX1 ST
11	TAXABLE2 ST	TAX2 ST
12	TAXABLE3 ST	TAX3 ST
13	TAXABLE4 ST	TAX4 ST
14	TAXABLE5 ST	TAX5 ST
15	TAXABLE6 ST	TAX6 ST
16	VAT/TAX 1	VAT 1
17	VAT/TAX 2	VAT 2
18	VAT/TAX 3	VAT 3
19	VAT/TAX 4	VAT 4
20	VAT/TAX 5	VAT 5
21	VAT/TAX 6	VAT 6
22	NET1	NET1
23	NET2	NET2
24	COUPON PLU	CP PLU

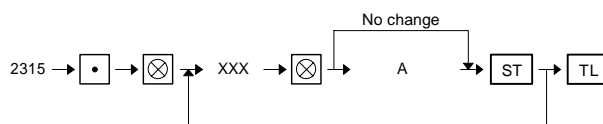
F-NO.	FUNCTION	DEFAULT TEXT
25	REFUND	REFUND
26	VOID	↻
27	VOID MODE	↻ MODE
28	MANAGER VOID	MGR ↻
29	SBTL VOID	SBTL ↻
30	HASH VOID	HASH ↻
31	HASH REFUND	HASH RF
32	VAT SHIFT	VAT SFT
33	VAT/TAX DELETE	TAX DELE
34	VP COUNTER (for ER-A440 only)	VP CNT
35	NO SALE	NO SALE
36	G.C. COUNTER	G. C. CNT
37	RA	***RA
38	RA2	***RA2
39	PO	***PO
40	PO2	***PO2
41	CHECK CASHING	CA/CHK
42	CASH	CASH
43	CASH2	CASH2
44	CHECK1	CHECK
45	CHECK2	CHECK2
46	CHECK3	CHECK3
47	CHECK4	CHECK4
48	CREDIT1	CREDIT1
49	CREDIT2	CREDIT2
50	CREDIT3	CREDIT3
51	CREDIT4	CREDIT4
52	EXCHANGE1	EXCH1
53	EXCHANGE2	EXCH2
54	EXCHANGE3	EXCH3
55	EXCHANGE4	EXCH4
56	EXCHANGE1 IS	EXCH1 IS
57	EXCHANGE2 IS	EXCH2 IS
58	EXCHANGE3 IS	EXCH3 IS
59	CASH IN DRAWER	***CID
60	CASH/CHECK IS	CA/CH IS
61	CASH/CHECK IN DRAWER	CA/CH ID
62	CHECK CHANGE	CHK/CG
63	CUSTOMER	GUEST
64	ORDER TOTAL	ORDER TL
65	PAID TOTAL	PAID TL
66	DOMESTIC CURRENCY1	DOM. CUR1
67	DOMESTIC CURRENCY2	DOM. CUR2
68	DOMESTIC CURRENCY3	DOM. CUR3
69	DOMESTIC CURRENCY4	DOM. CUR4
70	CHECK IN DRAWER	*CH ID
71	COMMISSION SALE1	COM. SAL1
72	COMMISSION SALE2	COM. SAL2
73	COMMISSION SALE3	COM. SAL3
74	COMMISSION SALE4	COM. SAL4
75	COMMISSION SALE5	COM. SAL5

F-NO.	FUNCTION	DEFAULT TEXT
76	COMMISSION SALE6	COM. SAL6
77	COMMISSION SALE7	COM. SAL7
78	COMMISSION SALE8	COM. SAL8
79	COMMISSION SALE9	COM. SAL9
80	NON COMMISSION SALE	NON. COM
81	(+) DEPT TOTAL	*DEPT TL
82	(-) DEPT TOTAL	DEPT(-)
83	HASH (+) DPT TOTAL	*HASH TL
84	HASH (-) DPT TOTAL	HASH(-)
85	BOTTLE (+) TOTAL	*BTTL TL
86	BOTTLE (-) TOTAL	BTTL(-)
87	NET 1 (TAXABLE1-VAT1)	NET 1
88	NET 2 (TAXABLE2-VAT2)	NET 2
89	NET 3 (TAXABLE3-VAT3)	NET 3
90	NET 4 (TAXABLE4-VAT4)	NET 4
91	NET 5 (TAXABLE5-VAT5)	NET 5
92	NET 6 (TAXABLE6-VAT6)	NET 6
93	SUBTOTAL	SUBTOTAL
94	MDS SBTL	MDSE ST
95	DIFFER SUBTOTAL	DIFF ST
96	TOTAL	***TOTAL
97	CHANGE	CHANGE
98	ITEMS	ITEMS
99	PLU ST (for Link PLU %)	PLU ST
100	COPY RCPT TITLE	<b>COPY</b>
101	G.C. COPY TITLE	G. C. COPY
102	AVERAGE	AVE.
103	GROUP1	<b>GROUP01</b>
104	GROUP2	<b>GROUP02</b>
105	GROUP3	<b>GROUP03</b>
106	GROUP4	<b>GROUP04</b>
107	GROUP5	<b>GROUP05</b>
108	GROUP6	<b>GROUP06</b>
109	GROUP7	<b>GROUP07</b>
110	GROUP8	<b>GROUP08</b>
111	GROUP9	<b>GROUP09</b>
112	CCD	<b>CCD</b>
113	CCD DIFFER	CCD DIF.
114	CCD DIFFER TOTAL	DIF. TL
115	ORDER TL-PAID TL	<b>O-P</b>
116	TOTAL TAX (on Report)	TTL TAX
117	NET WITHOUT TAX (on Report)	<b>NET</b>
118	COMMISSION AMOUNT1	COM. ANT1
119	COMMISSION AMOUNT2	COM. ANT2
120	COMMISSION AMOUNT3	COM. ANT3
121	COMMISSION AMOUNT4	COM. ANT4
122	COMMISSION AMOUNT5	COM. ANT5
123	COMMISSION AMOUNT6	COM. ANT6
124	COMMISSION AMOUNT7	COM. ANT7
125	COMMISSION AMOUNT8	COM. ANT8
126	COMMISSION AMOUNT9	COM. ANT9

F-NO.	FUNCTION	DEFAULT TEXT
127	COMMISSION AMOUNT TOTAL	COM. TTL
128	DEPT. REPO. TITLE	<b>DEPT</b>
129	GROUP REPO. TITLE	<b>GROUP</b>
130	PLU REPO. TITLE	<b>PLU</b>
131	TRANS. PEPO. TITLE	TRANS.
132	CID REPO. TITLE	TL-ID
133	CLERK REPO. TITLE	CLERK
134	CASHIER REPO. TITLE	CASHIER
135	HOURLY REPO. TITLE	HOURLY
136	DAILY NET REPO. TITLE	DAILY
137	ZERO SALES REPT TITLE	ZERO SAL
138	CATEGORY REPO. TITLE	CATEGORY
139	COMMISSION REPO. TITLE	SALES

### [JOB#2315]

MISC KEY PROGRAMMING (%)



XXX: Function No.

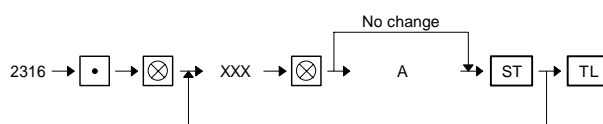
A:	% type	A
	Subtotal %	0
	Item %	1

Function No.	Function	Remarks
5	%1	
6	%2	
7	%3	
8	%4	

MRS = 0

### [JOB#2316]

MISC KEY PROGRAMMING (—)



XXX: Function No.

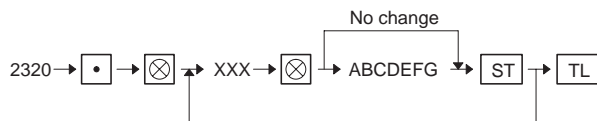
A:	(—) type	A
	Subtotal (—)	0
	Item (—)	1

Function No.	Function	Remarks
1	(—) 1	
2	(—) 2	
3	(—) 3	
4	(—) 4	

MRS = 0

## [JOB#2320]

### MEDIA KEY PROGRAMMING



XXX: Function No.

Function No.	Function	A	B	C	D	E	F	G
42	CA1		○	○	○	○	○	○
43	CA2		○	○	○	○	○	○
44	CHK1	○	○	○	○	○	○	○
45	CHK2	○	○	○	○	○	○	○
46	CHK3	○	○	○	○	○	○	○
47	CHK4	○	○	○	○	○	○	○
48	CR1	○	○	○	○	○	○	○
49	CR2	○	○	○	○	○	○	○
50	CR3	○	○	○	○	○	○	○
51	CR4	○	○	○	○	○	○	○

\* Items marked with (○) are programmable.

A:	EFT function	A
	Non compulsory	0
	Compulsory	1

B:	Footer print	B
	No	0
	Yes	1

C:	Non-add code entry	C
	Non compulsory	0
	Compulsory	1

D:	Change due	D
	Enable	0
	Disable	1

E (For ER-A440):	VP	E
	Non compulsory	0
	Compulsory	1

E (For ER-A450): Not used (Fixed at "0")

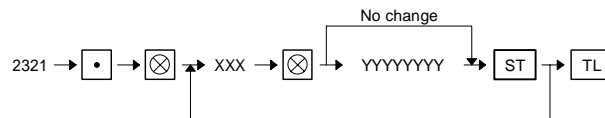
F:	Drawer opening	F
	Yes	0
	No	1

G:	Entry of amount tendered	G
	Non compulsory (Cash, Check) Inhibit (CR1 to CR4)	0
	Compulsory	1

MRS=0000000

## [JOB#2321]

### MEDIA KEY FUNCTION PROGRAM (AMOUNT HALO)



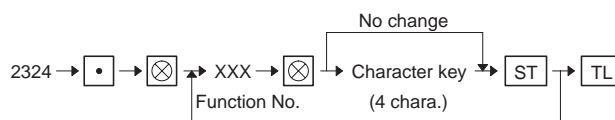
XXX: Function No.

YYYYYYY: Limitation amount

Func. No.	Function	Entry range	MRS
59	CID (Sentinel)	0 to 999999999	999999999
62	CHK CHANGE	0 to 99999999	99999999
41	CA/CHK	0 to 99999999	99999999

## [JOB#2324]

### CURRENCY DESCRIPTER



XXX: Function No.

Function No.	Function	Remarks
52	Exchange 1	
53	Exchange 2	
54	Exchange 3	
55	Exchange 4	

Character can be entered by using character keys or numeric keys. The key entry sequence for entering one character by numeric keys is as follows:

XXX → 00 KEY                      XXX: Character code (3 digits)

Please refer to section 4.

MRS = "space"

This symbol is printed with (+) amount of foreign currency. The programmed characters is printed at left side of amount.

Ex) Case of "DM":

EXCH1	1.234567
DM	1.23

|

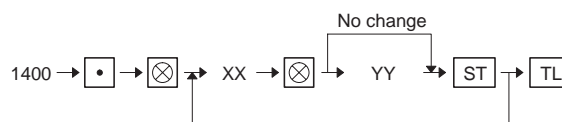
Programmed symbol

If some space characters are programmed at the left side of symbol (like " \*"), they are not counted as the number of character of the currency symbol. (In case of " DM", the number of character is 2.)

Ex) Case of " DM": (The currency symbol means "DM")

## [JOB#1400]

### CLERK CODE DIFINITION



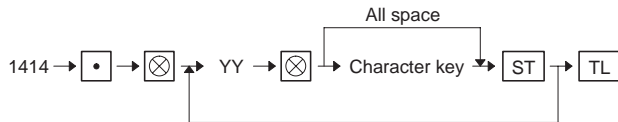
XX: Clerk No.= 1 ~ 99

YY: Clerk code = 00 ~ 99

MRS = No record (It is set same code as clerk No. when a clerk file is created.)

## [JOB#1414]

### CLERK NAME PROGRAMMING



YY: Clerk code = 1 ~ 99

Characters can be entered by using character keys or numeric keys.  
The key entry sequence for entering one character by numeric keys is as follows:

XXX → 00 KEY

XXX: Character code (3 digits)

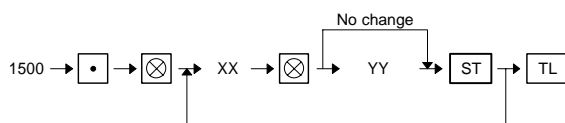
Please refer to section 4.

Max. 8 characters

MRS = No record (It is set all space when a clerk file is created.)

## [JOB#1500]

### CASHIER CODE DEFINITION



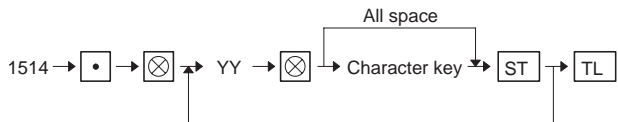
XX: Cashier No.= 1 ~ 99

YY: Cashier code = 00 ~ 99

MRS = 01;1, 02;2, 03;3, 04;4  
(Some code as cashier No.)

## [JOB#1514]

### CASHIER NAME PROGRAMMING



YY: Cashier code = 01 ~ 99

Characters can be entered by using character keys or numeric keys.  
The key entry sequence for entering one character by numeric keys is as follows:

XXX → 00 KEY

XXX: Character code (3 digits)

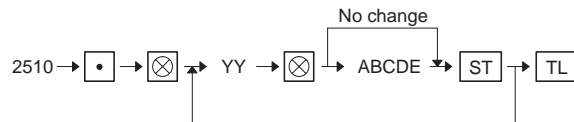
Please refer to section 4.

Max. 8 characters

MRS = 'Space'

## [JOB#2510]

### CASHIER PROGRAMMING



YY: Cashier code = 01~99

A:

G.C. copy	A
Enable	0
Disable	1

B:

VAT shift	B
Not	0
State	1

C, D: Not used (Fixed at "00")

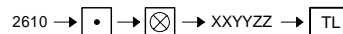
E:

Drawer No.	H
Not open	0
Drawer No.	1~2

MRS = 00001

## [JOB#2610]

### DATE SETTING



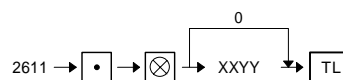
XXYYZZ: Date (Year-Month-Day/Day-Month-Year/Month-Day-Year)

\* The date entry format complies with the applicable SRV-mode programming.

MRS = 010100

## [JOB#2611]

### TIME SETTING



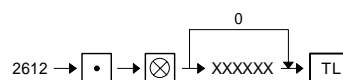
XX: Hour (00 ~ 23)

YY: Minute (00 ~ 59)

MRS = 0

## [JOB#2612]

### MACHINE NUMBER SETTING



XXXXXX: Machine number (0 ~ 999999)

MRS = 0

## [JOB#2613]

### CONSECUTIVE NUMBER SETTING

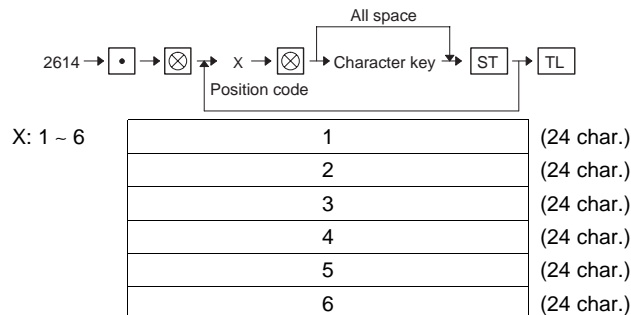


XXXX: Consecutive number (0000 ~ 9999)

MRS = 0000

## [JOB#2614]

### LOGO TEXT PROGRAMMING

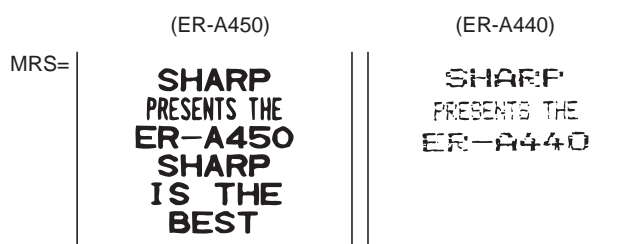


Character can be entered by using character keys or numeric keys.

The key entry sequence for entering one character by numeric keys is as follows:

XXX → 00 Key      XXX: Character code (3 digits)

Please refer to section 4.

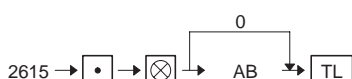


NOTE: This programming is related to JOB# 912D programming. The programmable line has below relations with each key word at JOB# 912D.

"6-line header": All 6 lines are programmable.  
 "3-line header": Upper 3 lines (1st-3rd line) are programmable.  
 "3-line footer": Lower 3 lines (4th-6th line) are programmable.  
 "Graphical LOGO only": No line is programmable.

## [JOB#2615]

Programming of the No. of times of validation printing and feed line after printing Differ ST.



A (For ER-A440): No. of times of validation printing = 0 to 9

A (For ER-A450): Not used (Fixed at "0")

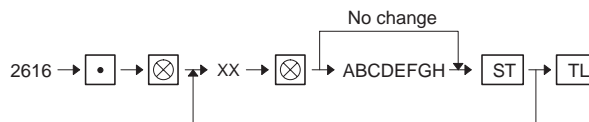
B: Feed line after despression of differ subtotal key = 0 to 9

MRS = 10 (For ER-A440)

00 (For ER-A450)

## [JOB#2616]

### OPTIONAL FEATURE



X: 1      MRS = 00000000

A:	OP X/Z report	A
	Enable	0
	Disable	1

B:	PO operation in REG mode	B
	Enable	0
	Disable	1

C: Not used (Fixed at "0")

D:	"RFND" key entry in REG mode	D
	Enable	0
	Disable	1

E:	Direct void function in REG mode	E
	Enable	0
	Disable	1

F:	Indirect void in REG mode	F
	Enable	0
	Disable	1

G:	Subtotal void in REG mode	G
	Enable	0
	Disable	1

H (For ER-A440):

	Refund VP	H
	Non compulsory	0
	Compulsory	1

H (For ER-A450): Not used (Fixed at "0")

X: 2      MRS = 00000000

A:	The first last item void	A
	Enable	0
	Disable	1

B, C: Not used (Fixed at "00")

D:	Printing of the number of purchases	D
	No	0
	Yes	1

E:	Time print	E
	Yes	0
	No	1

F:	Printing of journal	F
	Full print	0
	Journal select	1

G (For ER-A440):

	Item VP	G
	Enable	0
	Disable	1

G (For ER-A450): Not used (Fixed at "0")

H (For ER-A440):

(-) VP	H
Non compulsory	0
Compulsory	1

H (For ER-A450): Not used (Fixed at "0")

X: 3 MRS = 00000000

A: Not used (Fixed at "0")

B: Zero skip in Clerk report	B
Yes	0
No	1

C: Zero skip in Cashier report	C
Yes	0
No	1

D: Zero skip in Transaction report	D
Yes	0
No	1

E: Zero skip in Dept. report	E
Yes	0
No	1

F: Zero skip in PLU report	F
Yes	0
No	1

G: Zero skip in Hourly report	G
Yes	0
No	1

H: Zero skip in Daily net report	H
Yes	0
No	1

X: 4 MRS = 00000000

A, B: Not used (Fixed at "00")

C: Vat/Tax amount printing on R/J	C
Yes	0
No	1

D: Taxable amount printing on R/J	D
Yes	0
No	1

E: Net amount printing on R/J	E
Yes	0
No	1

F, G, H: Not used (Fixed at "000")

X: 5 MRS = 00000000

A, B, C: Not used (Fixed at "000")

D: VAT shift system	D
By cashier	0
By shift key	1

E, F, G, H: Not used (Fixed at "0000")

X: 6 Not used

MRS = 00000000

X: 7

MRS = 00000000

A, B: Not used (Fixed at "00")

C: No sale in REG mode	C
Enable	0
Disable	1

D: Finalization in REG mode when ST is zero	D
Enable	0
Disable	1

E, F, G, H: Not used (Fixed at "0000")

X: 8 Not used

MRS = 00000000

X: 9

MRS = 00000000

A, B, C: Not used (Fixed at "000")

D: Printing of EX1 amount for Total and Change	D
No	0
Yes	1

E, F, G: Not used (Fixed at "000")

H (For ER-A440): Not used (Fixed at "0")

H (For ER-A450):

Footer graphic LOGO printing at the end of receipt	H
No	0
Yes	1

X: 10 NOT USED

MRS = 00000000

X: 11 NOT USED

MRS = 00000000

X: 12 NOT USED

MRS = 00000000

X: 13

MRS = 00000000

A: Credit totalizer update if RA/PO finalized by Credit key	A
No	0
Yes	1

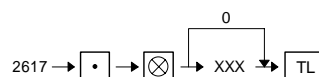
B: Separator line in report	B
1 line	0
Separator line	1

C: Link PLU print format in REG/MGR mode	C
Each PLU	0
Parent PLU text with total amount	1

D, E, F, G, H: Not used (Fixed at "00000")

## [JOB#2617]

PROGRAMMING OF THE TIME INTERVAL FOR THE DRAWER ALARM

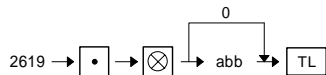


XXX: 0 ~ 255 sec

MRS = 000

## [JOB#2619]

### HOURLY REPORT (Starting time)



a:

Memory format	A
30 minutes (24 hour)	0
60 minutes (24 hour)	1

bb: Starting time (hour): 00 ~ 23

ex)

Case 1.



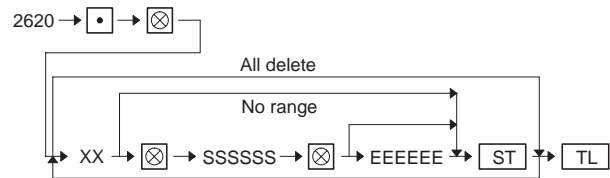
X1 Hourly report (#160) (30 min, start time = 7)

#160
7:00
(DATA)
7:30
(DATA)
SUBTOTAL
(DATA)
23:30
(DATA)
SUBTOTAL
(DATA)
0:00
(DATA)
0:30
(DATA)
SUBTOTAL
(DATA)
6:30
(DATA)
SUBTOTAL
(DATA)

24 hours started from 7:00

## [JOB#2620]

### STACK REPORT



XX: JOB#  
 SSSSSS: Start code  
 EEEEEEE: End code

JOB#	REPORT NAME	TYPE
00	General	
10	DEPT.	
13	DEPT. All group	
20	PLU	RANGE
27	PLU zero sales	
29	PLU category	RANGE
30	Transaction	
31	CID	
32	Commission sale	
40	All clerk	
50	All cashier	
60	Hourly	ALL RANGE (only X report)
70	Daily net	

[\*\*]

Max. 70 step are programmable. "1 step" means the memory size used for one no range type JOB#.

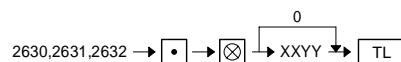
The RANGE type JOB# means "8 steps".

For example)

The memory size for programming JOB#00, 20 and 50 is 10 steps. (ie. 1 step for JOB#00, 8 step for JOB#20, and 1 step for JOB#50.)

## [JOB#2630, 2631, 2632]

### SECRET CODE PROGRAMMING



#2630: PGM1 mode

#2631: X1/Z1 mode

#2632: X2/Z2 mode

\* If "0" is entered, "compulsory secret code entry" is canceled.

MRS = 0



## [JOB#2680]

### PROGRAMMING FOR EXCHANGE DRAWER



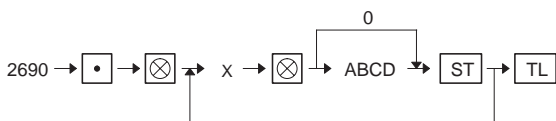
X:

DRAWER No.	X
Non	0
#1	1
#2	2

MRS = 0

## [JOB#2690]

### THE ASSIGNMENT OF RS232 FUNCTION BY EACH DEVICES



X: 1 MRS = 0000

A:

On-line	A
No	0
Yes (Channel #8)	8

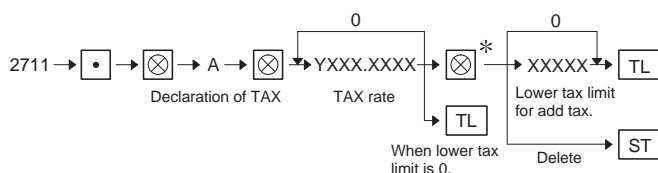
B, C, D: Not used (Fixed at "000")

X: 2 Not used MRS = 0000

X: 3 Not used MRS = 0000

## [JOB#2711]

### TAX RATE PROGRAMMING



\* DEPRESSION OF THE ST KEY AT FOLLOWING POINTS PERFORM A TAX TABLE DELETE OPERATION.

A:

Tax programming	A
Tax1	1
Tax2	2
Tax3	3
Tax4	4
Tax5	5
Tax6	6

Y:

Sign	y
+	0
-	1

xxx.xxxx: Rate = 0.0000~100.0000%

LOWER TAX LIMITATION = 0.00 to 999.99

(This is invalid in VAT system.)

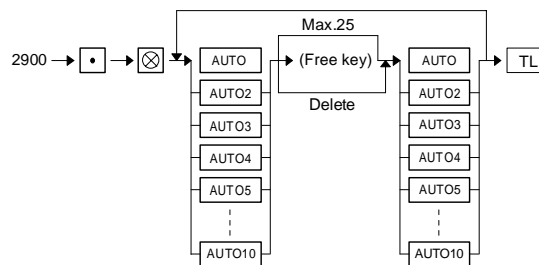
MRS = DELETE

## [JOB#2900]

### <CAUTION>

(This JOB must be performed at X2/Z2 mode position.)

### AUTO KEY SETTING



(Auto key function)

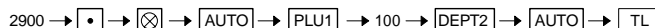
- This machine has [AUTO] key which can be programmed by the following key-sequence.
- When [AUTO] key is depressed, the machine works the same as the programmed key-sequence programed.

<Example>

Mode switch

↓

(X2/Z2)



(REG)

Key entry	R/J	Display	Comment
[AUTO]	PL000001 *1.10	PL0000001 1.10	same as [PLU1] entry
		1	same as [1] entry
		10	same as [0] entry
		100	same as [0] entry
	DEPT02 *1.00	DEPT02 1.10	same as [DEPT2] entry

(X2/Z2)

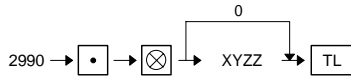


(REG)

Key entry	R/J	Display	Comment
[DEPT 1]	DEPT01 *1.00	DEPT01 1.00	
[AUTO 2]		1	same as [1] entry
		10	same as [0] entry
		100	same as [0] entry
	***TOTAL *1.00	CHANGE 0.00	same as [TL] entry
	CASH *1.00		
	CHANGE *0.00		

## [JOB#2990] (only For ER-A450)

### THERMAL PRINTER PROGRAMMING



X, Y: Not used (Fixed at "10")

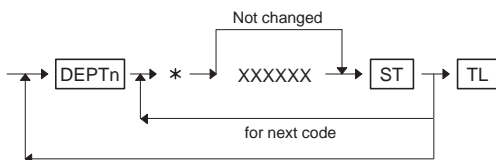
ZZ:	Selecting of light and shade	ZZ
	80% for standard	00
	90% standard	50
	100% standard	99

MRS= 1050

## 3. Programming by direct key entry

### 1) PRICE PROGRAMMING for DEPT.

Mode: PGM1/PGM2



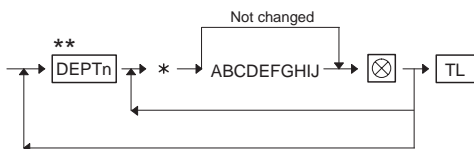
XXXXXX: UNIT PRICE (Max. 6 digits)

MRS = 0

\* If [DPTn] (same as displayed department number) is depressed, programming mode is changed from "PRICE PROGRAMMING" to "FUNCTION PROGRAMMING" (from "FUNCTION PROGRAMMING" to "PRICE PROGRAMMING").

### 2) FUNCTION PROGRAMMING for DEPT.

Mode: PGM2



A: Not used (Fixed at "0")

B:	Taxable6	B
	Non taxable	0
	Taxable	1

C:	Taxable5	C
	Non taxable	0
	Taxable	1

D:	Taxable4	D
	Non taxable	0
	Taxable	1

E:	Taxable3	E
	Non taxable	0
	Taxable	1

F:	Taxable2	F
	Non taxable	0
	Taxable	1

G:	Taxable1	G
	Non taxable	0
	Taxable	1

H:	SICS Function	H
	Normal	0
	Single item cash sale	1
	Single item finalize	2

I: Limitation (Mantissa) = 0~9

J: Limitation (Exponebt) = 0~7

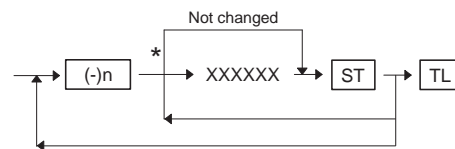
MRS = 0000000017

\* If [DPTn] (same as displayed department number) is depressed, programming mode is changed from "PRICE PROGRAMMING" to "FUNCTION PROGRAMMING" (from "FUNCTION PROGRAMMING" to "PRICE PROGRAMMING").

\*\* Double depression of [DPTn] is necessary for the first time.

### 3) PRICE & MODIFY PROGRAMMING for (-) KEYS.

Mode: PGM1/PGM2



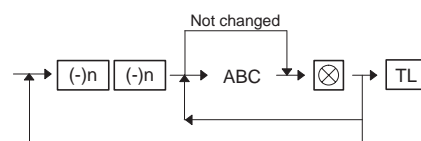
XXXXXX: UNIT PRICE (Max. 6 digits)

MRS = 0

\* If the same [(-)n] key is depressed, programming mode is changed from "PRICE PROGRAMMING" to "FUNCTION PROGRAMMING" (from "FUNCTION PROGRAMMING" to "PRICE PROGRAMMING").

### 4) FUNCTION PROGRAMMING for (-) KEYS.

Mode: PGM2



A:	Sign	A
	+	0
	-	1

B: Limitation (Mantissa) = 0~9

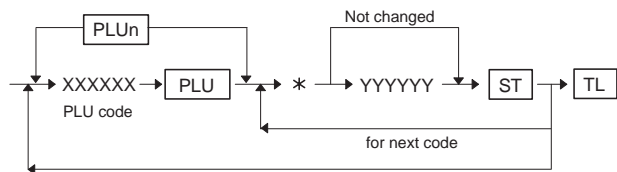
C: Limitation (Exponebt) = 0~7

MRS = 117

\* If the same [(-)n] key is depressed, programming mode is changed from "PRICE PROGRAMMING" to "FUNCTION PROGRAMMING" (from "FUNCTION PROGRAMMING" to "PRICE PROGRAMMING").

## 5) PLU PRESET PRICE SETTING

Mode: PGM1/PGM2



XXXXXX: PLU CODE (1 to 999999)

YYYYYY: UNIT PRICE (6 digits)

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

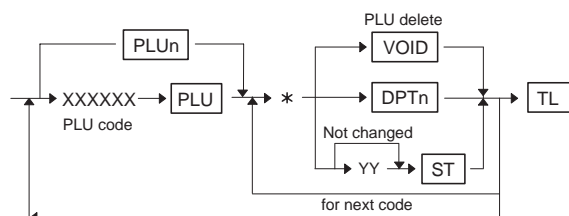
MRS = 0

\* If the [PLU] or [PLUn] key is depressed, programming mode is changed from "PRICE PROGRAMMING" to "ATTRIBUTE PROGRAMMING" and changed to "PLU ASSOCIATION PROGRAMMING" by depressing the same key again.  
(Caution!!)

The associated department is changed if the operator depress [DPTn] key instead of [PLUn] key by mis-operation at this timing.

## 6) PLU ASSOCIATION TO DEPARTMENTS

Mode: PGM1/PGM2



XXXXXX: PLU CODE (1 to 999999)

YY: Dept. code (1 to 50)

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

MRS = 01

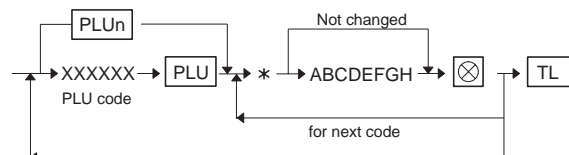
\* If the [PLU] or [PLUn] key is depressed, programming mode is changed from "PRICE PROGRAMMING" to "ATTRIBUTE PROGRAMMING" and changed to "PLU ASSOCIATION PROGRAMMING" by depressing the same key again.  
(Caution!!)

The associated department is changed if the operator depress [DPTn] key instead of [PLUn] key by mis-operation at this timing.

\*\* Triple depression of [PLU] or [PLUn] key is necessary for the first time.

## 7) PROGRAMMING OF PLU/SUBDEPT

Mode: PGM2



XXXXXX: PLU CODE (1 to 999999)

A:	Sign	A
	+	0
	-	1

B:	Taxable6	B
	Non taxable	0
	Taxable	1

C:	Taxable5	C
	Non taxable	0
	Taxable	1

D:	Taxable4	D
	Non taxable	0
	Taxable	1

E:	Taxable3	E
	Non taxable	0
	Taxable	1

F:	Taxable2	F
	Non taxable	0
	Taxable	1

G:	Taxable1	G
	Non taxable	0
	Taxable	1

H:	Amount entry type	H
	Inhibited	0
	Open	1
	Preset	2
	Open and preset	3
	Delete	4

If the record of entered PLU code is not in PLU file at this programming, it will be created in PLU file.

MRS = 00000002

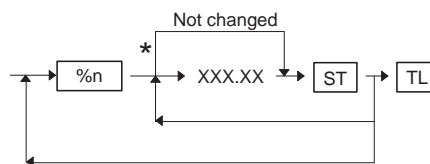
\* If the [PLU] or [PLUn] key is depressed, programming mode is changed from "PRICE PROGRAMMING" to "ATTRIBUTE PROGRAMMING" and changed to "PLU ASSOCIATION PROGRAMMING" by depressing the same key again.

(Caution!!) The associated department is changed if the operator depress [DPTn] key instead of [PLUn] key by mis-operation at this timing.

\*\* Double depression of [PLU] or [PLUn] key is necessary for the first time.

## 8) PROGRAMMING RATE FOR %KEY.

Mode: PGM1/PGM2



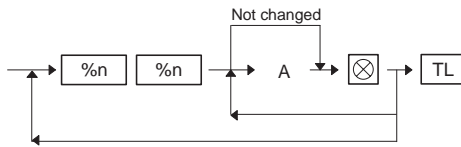
XXX.XX: 0.00 to 100.00

MRS = 0.00%

\* If the same [%n] key is depressed, programming mode is changed from "RATE PROGRAMMING" to "FUNCTION PROGRAMMING" (from "FUNCTION PROGRAMMING" to "PRICE PROGRAMMING").

## 9) PROGRAMMING FOR %KEY.

Mode: PGM2



A:

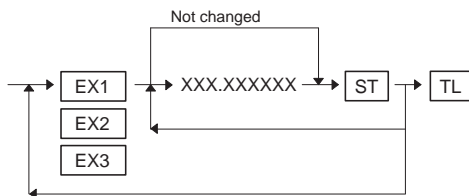
Sign	A
+	0
-	1

MRS = 1

\* If the same [%n] key is depressed, programming mode is changed from "RATE PROGRAMMING" to "FUNCTION PROGRAMMING" (from "FUNCTION PROGRAMMING" to "PRICE PROGRAMMING").

## 10) PROGRAMMING RATE FOR EXCHANGE KEY

Mode: PGM1/PGM2

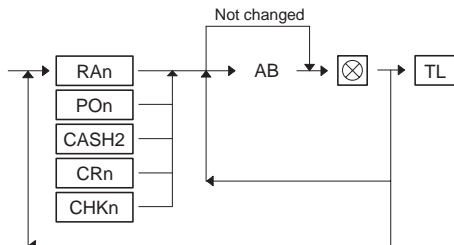


XXX.XXXXXX: 0.000000 to 999.999999

MRS = 0.000000

## 11) PROGRAMMING FOR MEDIA KEYS & FUNCTION KEYS.

Mode: PGM2



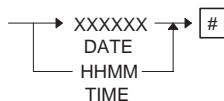
A: Mantissa (0 to 9)

B: Exponent (0 to 8)

MRS = 18

## 12) DATE, TIME PROGRAMMING.

Mode: PGM1/PGM2



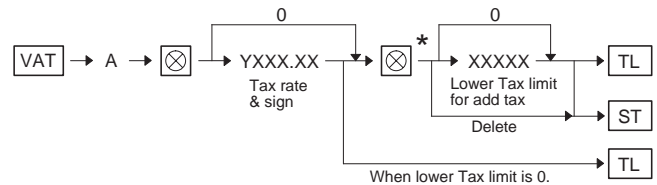
DATE: date entry format follows SRV Programming (6 digits)

TIME: 24 hour system (4 digits)

MRS = DATE: 01/01/00

TIME: 00:00

## 13) TAX TABLE PROGRAMMING



\* DEPRESSION OF THE SBTL KEY AT THE FOLLOWING POINTS MEANS A TAX TABLE DELETE OPERATION.

A: TAX1 PROGRAMMING = 1  
TAX2 PROGRAMMING = 2  
TAX3 PROGRAMMING = 3  
TAX4 PROGRAMMING = 4  
TAX5 PROGRAMMING = 5  
TAX6 PROGRAMMING = 6

% TAX RATE & SIGN

SIGN y = 1/0; -/+

RATE xxx.xxxx = 0.0000 to 100.0000 %

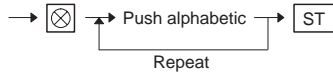
LOWER TAX LIMITATION 0.00 to 999.99

(This is invalid in VAT system.)

MRS = DELETE

## 4. Character assignment method

### ~ Using alphabetic assignment method ~



### Programming key layout

							(DC)		(Shift-2)	(Shift)	£ æ Æ (BACK Space)	
							“	”	#	\$	%	&
							A	F	K	P	U	X
		β					,	*	@	/	(	)
		0					B	G	L	Q	V	Y
(v)	(^)	ı					:	;	,	.	!	?
7	8	9					C	H	M	R	W	Z
(.)	(*)	(-)	§ ø				+	-	=	ç		
4	5	6	Φ				D	I	N	S		
(\)	(')	(°)	(Space)				<	>	Pt	£		
1	2	3					E	J	O	T		

( ) : Function key

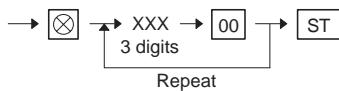
(DC) : Double character code entry key (One-shot)

(Shift) : Character shift key (Stay-down)

(Shift-2) : Mark key (One-shot)

(BS) : Back space key

### ④ Using ten key of ECR



Note: **00** key is used to enter each 3 digit alpha code.

### Examples

→ **" A** = A is set

**" A** **(Shift-2)** → **" A** = " is set

**(DC)** → **" A** = A (double character code) is set

**(Shift)** → **" A** = a (lowercase letter) is set

\* Once the **(Shift)** key is pressed, it stays down until it is pressed again.

### <Character Code Table for text programming>

CODE	CHARACTER	CODE	CHARACTER	CODE	CHARACTER	CODE	CHARACTER	CODE	CHARACTER
001	à	023	Ξ	045	—	067	C	089	Y
002	â	024	Π	046	.	068	D	090	Z
003	ê	025	Σ	047	/	069	E	091	Ä
004	î	026	Υ	048	0	070	F	092	Ö
005	ì	027	Φ	049	1	071	G	093	Ü
006	í	028	Ψ	050	2	072	H	094	^
007	ô	029	Ú	051	3	073	I	095	_
008	ó	030	Û	052	4	074	J	096	`
009	û	031	Ô	053	5	075	K	097	a
010	ú	032	(Space)	054	6	076	L	098	b
011	œ	033	!	055	7	077	M	099	c
012	ÿ	034	"	056	8	078	N	100	d
013	ù	035	#	057	9	079	O	101	e
014	Õ	036	\$	058	:	080	P	102	f
015	ó	037	%	059	;	081	Q	103	g
016	Λ	038	&	060	<	082	R	104	h
017	Ψ	039	'	061	=	083	S	105	i
018	Γ	040	(	062	>	084	T	106	j
019	..	041	)	063	?	085	U	107	k
020	Ω	042	*	064	@	086	V	108	l
021	Δ	043	+	065	A	087	W	109	m
022	Θ	044	,	066	B	088	X	110	n

CODE	CHARACTER	CODE	CHARACTER	CODE	CHARACTER	CODE	CHARACTER	CODE	CHARACTER
111	o	138	⓪	165	.	192	ç	218	'
112	p	139	◀	166	T <sub>1</sub>	193	İ	219	ř
113	q	140	▶	167	T <sub>2</sub>	194	Ġ	220	
114	r	141	F	168	T <sub>3</sub>	195	Ş	221	
115	s	142	T	169	T <sub>4</sub>	196	Ĝ	222	
116	t	143	↓	170	<sup>1</sup> 2	197	ğ	223	
117	u	144	ç	171	<sup>1</sup> 3	198	Қ	224	*
118	v	145	О	172	<sup>1</sup> 4	199	қ	225	§
119	w	146	ı	173	<sup>2</sup> 3	200	Ľ	226	∅
120	x	147	Ù	174	<sup>2</sup> 4	201	Ĵ	227	^
121	y	148	à	175	<sup>3</sup> 4	202	Ž	228	↑
122	z	149	Æ	176	⊞	203	Đ	229	]
123	{	150	φ	177	Á	204	đ	230	[
124		151	Å	178	Í	205	Ć	231	``
125	}	152	⌘	179		206	ć	232	ä
126	ß	153	é	180	Ā	207	€	233	ö
127	ç	154	è	181	ā	208	₪	234	ü
128	!!	155	Pt	182	Ē	209	`	235	æ
129	1	156	i	183	ē	210	ě	236	â
130	2	157	Ñ	184	ī	211	š	237	É
131	3	158	ò	185	î	212	č	238	ñ
132	4	159	£	186	Ū	213	ž		
133	½	160	¥	187	ū	214	ý		
134	F <sub>T</sub>	161	。	188	Ŋ	215	ù		
135	←	162	「	189	ŋ	216	ň		
136	→	163	」	190	Č	217	ˇ		
137	Ⓢ	164	、	191	Š			253	DC

(DC) : Double Code

: ECR Control Character (Not used for text)

Fig. 7-2

## CHAPTER 3. OP X/Z, X1/Z1,X2/Z2 MODE

The following categories of reports can be printed by the ECR.

- 1) OP X/Z reports (individual clerk reports)
- 2) X1/Z1 reports (Daily sales total X and Z reports)
- 3) X2/Z2 reports (Periodic total X and Z reports)

To print reports, use the following key entry sequence



	MODE *1									
	OP X/Z		X1/Z1		X2/Z2		F-read	*3 DATA FOR		
REPORT NAME	X	Z	X1	Z1	X2	Z2	X1 *4	JOB#	READING	NOTE
GENERAL			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		00	—	
DEPT/GROUP			<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	10	—	
IND. GROUP			<input type="radio"/>		<input type="radio"/>			12	GROUP No.	
GROUP TOTAL			<input type="radio"/>		<input type="radio"/>			13	—	
PLU BY RANGE			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		20	PLU CODE	*2
PLU BY DEPT			<input type="radio"/>		<input type="radio"/>			21	DPT CODE	
PLU ZERO SALES			<input type="radio"/>		<input type="radio"/>			27	ALL	
PLU PRICE CATEGORY			<input type="radio"/>		<input type="radio"/>			29	PRICE	*2
TRANSACTION			<input type="radio"/>		<input type="radio"/>			30	—	
TL-ID			<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	31	—	
COMMISSION SALES			<input type="radio"/>		<input type="radio"/>			32	—	
ALL CLERK			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		40	—	
IND. CLERK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		41	—	
ALL CASHIER			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		50	—	
IND. CASHIER	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		51	—	
HOURLY (ALL)			<input type="radio"/>	<input type="radio"/>				60	—	
(RANGE)			<input type="radio"/>					60	TIME	*2
DAILY NET					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	70	—	
STACKED REPORT			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		90	—	

- \*1 X1: Daily X report      Z1: Daily Z report  
 X2: Periodic X report      Z2: Periodic Z report

Stop of printing reports:

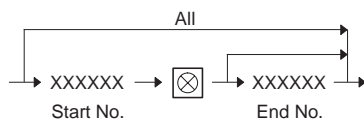
The printing of all reports can be stopped by the following operation.

Set the mode switch to "MGR" to cancel.

Note) When the printing is stopped, the consecutive number or Z counter don't return to the original value.  
 When Z reports, Memory is not reset.

- \*1 X1: Daily X report      Z1: Daily Z report  
 X2: Periodic X report      Z2: Periodic Z report

- \*2 PLU code range can be specified by entering the start and end numbers according to the following procedure. When specifying a single time interval, PLU code, the start number has only to be entered.



- \*3 When 2 is entered in the third digit of a job code, periodic reports are printed.

Example: Daily general report; job code 100  
 Periodic general report; job code 200

- \*4 Reading display only

→ [KEY] → [CL]

(Display amount) (Display initialize)

[KEY] DEPT = DEPTn key  
 CID = ⊗ key  
 Daily Net = ST key

- An individual report is printed on the receipt and journal when the TL key is pressed.
- Pressing the decimal point key just after the entry of a job code clears the corresponding data in the ECR. (Z report)  
 (When printing those reports for which no Z reports can be taken, the decimal point key cannot be pressed after the entry of a job code.)
- When the decimal point key is not pressed after the entry of a job code, the corresponding data is held in the ECR. (X report)

# CHAPTER 4. CHANGING EURO FUNCTION (X2/Z2 mode JOB)

This job is own to be able to be changed easily from local currency system to EURO currency system in X2/Z2 mode.

## (Changing EURO Function)



X: 1 = EURO STATUS (B)  
2 = EURO STATUS (C)

### [ About EURO STATUS ]

It is executing automatically to change from status (A) to status (B) or (C).

Selectable type is one of below 3 types.

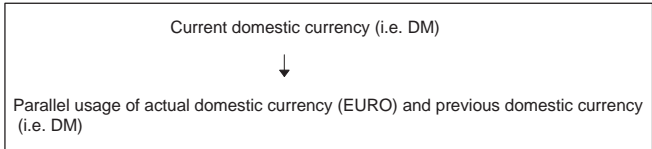
And the selectable type is decided as below for each status.

CURRENT STATUS ↓	Selectable STATUS		
	(A)	(B)	(C)
(A)	—	X	X
(B)	—	—	X
(C)	—	—	—

Marked "X" is selectable

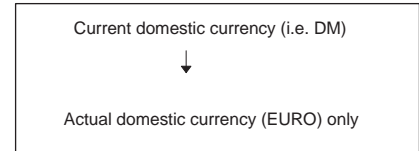
### <Selecting type and its action>

(A) to (B):



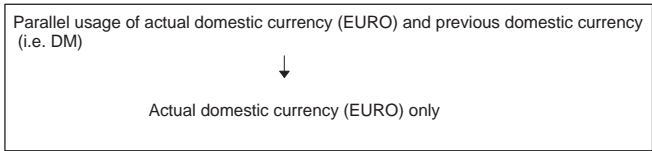
- 1) Issue General Z1 report.
- 2) Issue General Z2 report.
- 3) Clear GT1/2/3.
- 4) Set PGM function "EX1 AMOUNT PRINTING FOR TOTAL AND CHANGE" as "YES".
- 5) Set "Domestic currency symbol" as EURO SYMBOL.

(A) to (C):



- 1) Issue General Z1 report.
- 2) Issue General Z2 report.
- 3) Clear GT1/2/3.
- 4) Set PGM function "EX1 AMOUNT PRINTING FOR TOTAL AND CHANGE" as "NO".
- 5) Set "Domestic currency symbol" as EURO SYMBOL.

(B) to (C):



- 1) Issue General Z1 report.
- 2) Issue General Z2 report.
- 3) Set PGM function "EX1 AMOUNT PRINTING FOR TOTAL AND CHANGE" as "NO".

### (Caution!!)

This JOB cannot set EXCHANGE1 RATE and EXCHANGE1 CURRENCY SYMBOL automatically.

EX1 RATE and EX1 CURRENCY SYMBOL must be set by PGM mode JOB after this job.



# SHARP

**COPYRIGHT © 1998 BY SHARP CORPORATION**

All rights reserved.

Printed in Japan.

No part of this publication may be reproduced,  
stored in a retrieval system, or transmitted,  
in any form or by any means,  
electronic, mechanical, photocopying, recording, or otherwise,  
without prior written permission of the publisher.

**SHARP CORPORATION**  
**Information Systems Group**  
**Quality & Reliability Control Center**  
**Yamatokoriyama, Nara 639-1186, Japan**  
1998 May Printed in Japan ©

## **Register Settings for the EURO Introduction**

### **Registrierkassen-Einstellungen für die EURO-Einführung**

### **Réglages de l'enregistreuse pour l'introduction de l'EURO**

### **Ajustes de las cajas registradoras para la introducción del EURO**

*This leaflet describes the method to set your register so that it corresponds to the EURO system. Though the method is described in the instruction manual, some changes has been conducted already. So, regarding to the EURO setting, refer to this leaflet. (From page 1 to page 5)*

*Diese Ergänzung beschreibt wie Sie Ihre Registrierkasse einstellen müssen, damit sie auf das EURO-System abgestimmt wird. Obschon das Verfahren bereits in der Bedienungsanleitung beschrieben wurde, wurden bestimmte Punkte nachträglich geändert. Deshalb beziehen Sie sich bitte auf diese Ergänzung, wenn es zur EURO-Einführung kommt (von Seite 6 bis 10).*

*Cette brochure décrit la méthode de réglage de votre enregistreuse de manière à ce qu'elle corresponde au système de l'EURO. Bien que la méthode soit décrite dans le manuel d'instructions, certains changement ont été effectués. Aussi, en ce qui concerne le réglage de l'EURO, veuillez vous référer à cette brochure (de la page 11 à la page 15).*

*Este folleto describe el método de ajustar la caja registradora para que corresponda al sistema del EURO. Aunque el método se describe en el manual de instrucciones, ya se han realizado ciertos cambios, por lo que deberá consultar este folleto para realizar el ajuste de la denominación del EURO. (Desde la página 16 a la página 20)*

## ■ Before the register settings for the EURO introduction

As for the introduction of EURO, your register is set to be used the function of exchange 1 (**EX1** key) and depending on the steps EURO is introduced in the market, three periods are set as shown on the table below.

Basically your register can be automatically modified to correspond to the introduction of EURO by executing the operation of Job #800 in X2/Z2 mode. However, there are several options you must set depending on your needs. So, please carefully read this leaflet, and conduct necessary settings.

### How currencies are treated in your register

	Period 1	Period 2	Period 3
	After the introduction of EURO, and before EURO banknotes and coins begin to circulate	After EURO banknotes and coins begin to circulate, and before national currency is withdrawn from circulation. (Co-existence of EURO and national currency)	After the national currency is withdrawn from circulation
Currency	EURO	Exchange 1	Domestic currency
	National currency (DM, F, etc.)	Domestic currency	Exchange 1
	Foreign currency	Exchange 2 to Exchange 4	Exchange 2 to Exchange 4

### Receipt samples:

#### Period 1

DPT. 01	¥1.00	
DPT. 02	¥2.00	
***TOTAL	¥3.00	Sales total amount in national currency (as domestic currency)
	€1.56	Sales total amount in EURO *
CASH	¥5.00	Tendered amount in national currency
CHANGE	¥2.00	Change in national currency
	€1.04	Change in EURO*

\*: They are printed for information purposes only.

#### Period 2

DPT. 01	€0.52	
DPT. 02	€1.04	
***TOTAL	€1.56	Sales total amount in EURO (as domestic currency)
	¥2.99	Sales total amount in national currency*
CASH	€2.00	Tendered amount in EURO
CHANGE	€0.44	Change in EURO
	¥0.84	Change in national currency*

\*: They are printed for information purposes only.

#### Period 3

DPT. 01	€0.52
DPT. 02	€1.04
***TOTAL	€1.56
CASH	€2.00
CHANGE	€0.44

## ■ Automatic modification of register system for introduction of EURO

X2/Z2

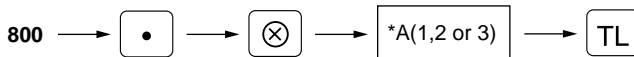
800

### Note

- Please note that this contents are changed from the ones on your instruction manual.

To make your register correspond to the introduction of EURO, your register system can be automatically modified when the procedure shown below is executed in the X2/Z2 mode. According to the steps of the introduction, you can make your register correspond to EURO.

### Procedure



\*A=1: Applicable for the period 1

\*A=2: Applicable for the period 2

\*A=3: Applicable for the period 3

### Note

- You can perform the each operation only once with the substitution of "A=1", "A=2" and "A=3". If you performed the operation with the substitution of "A=2" first, you cannot perform the operation with the substitution of "A=1". If you performed the operation with the substitution of "A=3" first, you cannot perform the operation with the substitution of "A=1" and "A=2".

The details of the register system modification are as follows:

#### When "1" is substituted to "A":

1. Issuing a general Z1 report (Job #100)
2. Issuing a general Z2 report (Job #200)
3. Setting "Yes" for a PGM function "Printing exchange 1 total amount and change amount on receipt and journal" (Job #2616)
4. Setting "Yes" for a PGM function "Printing exchange 1 total amount on validation printing" (Job #2616) <only for ER-A440>
5. Setting "Division" for a PGM function "Exchange 1 calculation method" (Job #2616)
6. Setting the EURO symbol ( € ) for the currency description text (Job #2334), and setting "2" for the number of digits after decimal point (Job #2330) of exchange 1
7. Setting the round-off function enable for currency exchange

After the execution of the procedure with the substitution of "1", treat EURO as foreign currency using Exchange 1 (EX1).

#### When "2" is substituted to "A":

1. Issuing a general Z1 report (Job #100)
2. Issuing a general Z2 report (Job #200)
3. Resetting GT1, GT2 and GT3
4. Setting "Yes" for a PGM function "Printing exchange 1 total amount and change amount on receipt and journal" (Job #2616)
5. Setting "Yes" for a PGM function "Printing exchange 1 total amount on validation printing" (Job #2616) <only for ER-A440>
6. Setting "Multiplication" for a PGM function "Exchange 1 calculation method" (Job #2616)
7. Changing the domestic currency symbol to the EURO symbol ( € ) and setting the number of digits after decimal point of the domestic currency to 2
8. For the setting of the currency description text and the number of digits after decimal point of exchange 1, the ones that had been set to the domestic currency are set. (Job #2330 and #2334)
9. Setting the round-off function enable for currency exchange

After the execution of the procedure with the substitution of "2", treat EURO as domestic currency, and national currency as foreign currency using Exchange 1 (EX1).

Since EURO becomes your domestic currency after execution of the procedure with the substitution of "2", you must change unit prices in the each department and PLU to make prices correspond EURO before actually you start operating your register again. As for the miscellaneous keys, also please change the rates or amounts so that they are based on amounts in EURO.

**When "3" is substituted to "A":**

1. Issuing a general Z1 report (Job #100)
2. Issuing a general Z2 report (Job #200)
3. Resetting GT1, GT2 and GT3
4. Setting "No" for a PGM function "Printing exchange 1 total amount and change amount on receipt and journal" (Job #2616)
5. Setting "No" for a PGM function "Printing exchange 1 total amount on validation printing" (Job #2616) <only for ER-A440>
6. Setting "Multiplication" for a PGM function "Exchange 1 calculation method" (Job#2616)
7. Changing the domestic currency symbol to the EURO symbol and setting the number of digits after decimal of the domestic currency to 2
8. Over-writing the currency description text of exchange 1 with spaces (Job #2334)
9. Setting the round-off function enable for currency exchange

After the execution of the procedure with the substitution of "3", treat EURO as domestic currency.

When the operation with the substitution of "2" has been performed already, "3. Resetting GT1, GT2 and GT3" is not executed.

## ■ Optional programming for the introduction of EURO

PGM 1

PGM 2

Programming relating with the function of exchange 1 (EX1) cannot be changed automatically with the execution of Job #800 described in the previous section. After the execution on each period, conduct the following programming depending on your needs.

### Programming for Exchange 1 (EX1)

#### Currency exchange rate (Job #1310)

For the period 1 and period 2, set the EURO conversion rate.

For the programming details, please refer to your instruction manual.

#### Cheque/credit operation (Job #2616)

This programming is newly added for the introduction of EURO. Please refer to "Programming for optional feature selection" on this leaflet.

#### Assigning the drawer number to the drawer for foreign currency (Job #2680)

It may be convenient to have two drawers for EURO (as domestic currency) and national currency (as the foreign currency set in exchange 1) when both of these currencies are co-existing (period 2). In this case, conduct this programming.

For the programming details, please refer to your instruction manual.

## ■ Programming for optional feature selection

PGM 2

2616

For the programming procedure, refer to the instruction manual.

### Note

- Some items on "P: 9" are newly added functions for the introduction of EURO, which do not described on your instruction manual.

P: 9

### Exchange 1 calculation method

"Division" or "Multiplication" can be selected for the conversion method from domestic currency to exchange 1 currency, and the calculation is performed as follows:

In case that "Division" is selected for the period 1,

Domestic currency amount (national currency amount)  $\div$  Exchange 1 rate (EURO conversion rate) = Exchange 1 amount (EURO amount)

In case that "Multiplication" is selected for the period 2,

Domestic currency amount (EURO amount)  $\times$  Exchange 1 rate (EURO conversion rate) = Exchange 1 amount (national currency amount)

### Printing of the exchange 1 total amount and change amount on the receipt/journal

Total and change amounts in exchange 1 currency are printed respectively below each of the total and exchange amounts in domestic currency.

On the period 1, EURO amount converted from national currency is printed below the national currency, and on the the period 2, national currency converted from EURO amount is printed.

### Validation printing of the exchange 1 total amount <only for ER-A440>

Exchange 1 amount converted from total sales amount can be printed on the validation print for total amount when cash, cheque or credit amount tender is performed.

### Cash/credit operation for exchange 1

You can set whether you receive foreign currency (exchange 1) amount by cheque or credit or not.

P: 9

Item:	Selection:	Entry:
A Always enter 0.		0
B Exchange 1 calculation method	Multiplication	0
	Division	1
C Cheque/credit operation for exchange 1	No	0
	Yes	1
D Printing exchange 1 total amount and change amount on receipt and journal	No	0
	Yes	1
E Printing exchange 1 total amount on validation printing	No	0
	Yes	1
F and G Always enter 0.		0
H Footer graphic logo printing	No	0
	Yes	1

### Note

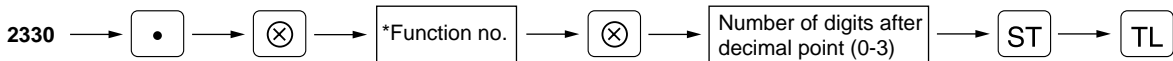
- In case that your register is ER-A440, always enter 0 for item H.
- In case that your register is ER-A450, always enter 0 for item E.
- The items B, D and E are automatically set by the operation of job #800.

# Programming the number of digits after decimal point for exchange keys

PGM 22330

- Note
- This is a newly added function for the introduction of EURO, which does not described on your instruction manual.
  - This setting for the EX1 is automatically programmed by execution of Job #800.

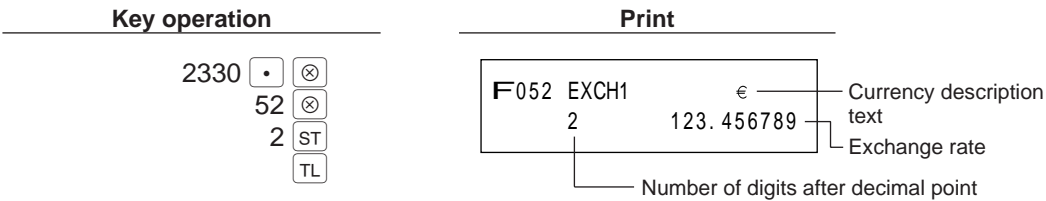
Procedure



\*Function no.:

52: For the EX1 key
53: For the EX2 key
54: For the EX3 key
55: For the EX4 key

Example

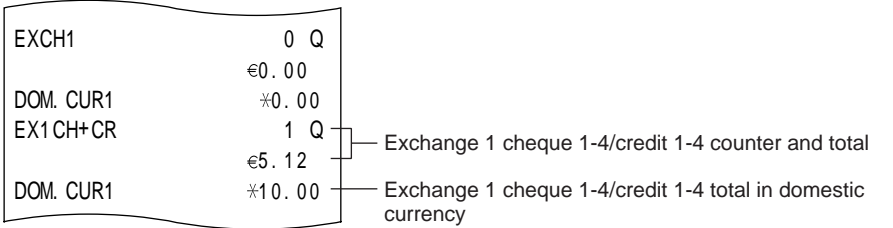


# Currency exchange in REG mode

If you set “Yes” for the cheque/credit operation for EX1 on the programming of job #2616, you can handle cheque and credit for exchange 1 amount. For example, on the period 1, you can receive cheque and credit in EURO when it is treated in exchange 1 as a foreign currency.

The exchange 1 amount received in the cheque and credit is printed on the reports (#100, #200, #130, #230, #131, #231, #50, #150, #250, #51, #151 and #251) as shown below.

Report sample:



You can change the function text used for the report by job# 2314 in PGM2 mode. For the programming procedure, refer to your instruction manual.

Function no. and default setting are as follows;

Function no.	Function	Default setting
140	Exchange 1 cheque+ credit sales	EX1CH+CR
141	Domestic currency for EX1 cheque + credit sales	DOM.CUR1

## ■ Vor den Registrierkassen-Einstellungen für die EURO-Einführung

Für die Einführung des EURO benutzt Ihre Registrierkasse die Fremdwährung-1-Funktion ( **EX1** ). Je nach dem Zeitpunkt der EURO-Einführung werden in der nachfolgenden Tabelle drei Zeiträume festgelegt.

Grundsätzlich läßt sich Ihre Registrierkasse durch Ausführung von Job #800 im X2/Z2-Modus automatisch modifizieren. Je nach den Erfordernissen sind jedoch zuvor einige Optionen einzustellen. Lesen Sie deshalb diese Ergänzung vor der Ausführung bitte sorgfältig durch.

### Verarbeitung der einzelnen Währungen in der Registrierkasse

	Zeitraum 1	Zeitraum 2	Zeitraum 3
	Nach der Einführung des EURO und vor der Zirkulation von EURO-Banknoten und Münzen.	Nach Zirkulation von EURO-Banknoten und Münzen, und bevor die nationale Währung aus dem Verkehr gezogen wird. (Koexistenz von EURO und nationaler Währung)	Nachdem die nationale Währung aus dem Verkehr gezogen ist.
Währung	EURO	Fremdwährung 1	Inlandswährung
	Nationale Währung (DM, F, usw.)	Inlandswährung	Fremdwährung 1
	Fremdwährung	Fremdwährung 2 bis Fremdwährung 4	Fremdwährung 1 bis Fremdwährung 4

### Druckbeispiel für Kassenbon:

#### Zeitraum 1

DPT. 01	¥1. 00	
DPT. 02	¥2. 00	
***TOTAL	¥3. 00	Gesamtumsatz in nationaler Währung (als Inlandswährung)
	€1. 56	Gesamtumsatz in EURO*
CASH	¥5. 00	Zahlung in nationaler Währung
CHANGE	¥2. 00	Wechselgeld in nationaler Währung
	€1. 04	Wechselgeld in EURO*

\*: Der Ausdruck dient ausschließlich zu Informationszwecken.

#### Zeitraum 2

DPT. 01	€0. 52	
DPT. 02	€1. 04	
***TOTAL	€1. 56	Gesamtumsatz in EURO (als Inlandswährung)
	¥2. 99	Gesamtumsatz in nationaler Währung*
CASH	€2. 00	Zahlung in EURO
CHANGE	€0. 44	Wechselgeld in EURO
	¥0. 84	Wechselgeld in nationaler Währung*

\*: Der Ausdruck dient ausschließlich zu Informationszwecken.

#### Zeitraum 3

DPT. 01	€0. 52
DPT. 02	€1. 04
***TOTAL	€1. 56
CASH	€2. 00
CHANGE	€0. 44



## ■ Automatische Modifikation des Registrierkassen-Systems für die Einführung des EURO

X2/Z2

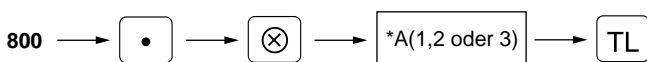
800

### Hinweis

- Der Inhalt dieser Ergänzung unterscheidet sich vom Inhalt in der Bedienungsanleitung.

Um Ihre Registrierkasse für die Einführung des EURO vorzubereiten, kann diese gemäß der nachfolgenden Tasteneingabefolge im X2/Z2-Modus automatisch ausgeführt werden. Entsprechend den Schritten der Einführung lässt sich Ihre Registrierkasse auf den EURO abstimmen.

### Verfahren



\*A=1: Für Zeitraum 1 anwendbar

\*A=2: Für Zeitraum 2 anwendbar

\*A=3: Für Zeitraum 3 anwendbar

### Hinweis

- Jeder einzelne Vorgang lässt sich nur einmal durch den Ersatz von "A=1", "A=2" und "A=3" durchführen. Wenn der Vorgang mit dem Ersatz von "A=2" zuerst durchgeführt wurde, lässt sich der Vorgang mit dem Ersatz von "A=1" nicht mehr erzielen. Wenn dieser Vorgang mit dem Ersatz von "A=3" zuerst ausgeführt wird, kann der Vorgang nicht mit dem Ersatz von "A=1" und "A=2" durchgeführt werden.

Die näheren Einzelheiten für die Modifikation des Registrierkassensystems sind wie folgt:

#### Wenn für "A" "1" gesetzt wird:

1. Ausstellung eines allgemeinen Z1-Berichts (Job #100).
2. Ausstellung eines allgemeinen Z2-Berichts (Job #200).
3. Programmierung von "Ja" für die PGM-Funktion "Ausdruck der Gesamtsumme für die Fremdwährung 1 und des Wechselgeldbetrags auf dem Kassenbon und Journalstreifen" (Job #2616).
4. Programmierung von "Ja" für die PGM-Funktion "Ausdruck der Gesamtsumme für die Fremdwährung 1 auf dem Quittungsdruckformular" (Job #2616). [Nur für ER-A440]
5. Programmierung von "Division" für die PGM-Funktion "Berechnungsmethode für die Fremdwährung 1" (Job #2616).
6. Programmierung des EURO-Symbols (€) für den Währungstext für die Fremdwährung 1 (Job #2334) sowie Programmierung von TAB "2" für die Anzahl der Stellen nach dem Dezimalpunkt für die Fremdwährung 1 (Job #2330).
7. Programmierung für das Aktivieren der Rundungsfunktion für die Fremdwährung.

Nach der Ausführung des Verfahrens mit dem Ersatz von "1" ist der EURO als Fremdwährung zu betrachten. Hierfür die Fremdwährungstaste 1 (**EX1**) benutzen.

#### Wenn für "A" "2" gesetzt wird:

1. Ausstellung eines allgemeinen Z1-Berichts (Job #100).
2. Ausstellung eines allgemeinen Z2-Berichts (Job #200).
3. Rückstellung von GT1, GT2 und GT3.
4. Programmierung von "Ja" für die PGM-Funktion "Ausdruck der Gesamtsumme für die Fremdwährung 1 und des Wechselgeldbetrags auf dem Kassenbon und Journalstreifen" (Job #2616).
5. Programmierung von "Ja" für die PGM-Funktion "Ausdruck der Gesamtsumme für die Fremdwährung 1 auf dem Quittungsdruckformular" (Job #2616). [Nur für ER-A440]
6. Programmierung von "Multiplikation" für die PGM-Funktion "Berechnungsmethode für die Fremdwährung 1" (Job #2616).

7. Veränderung des Inlandswährungssymbols zum EURO-Symbol ( € ) sowie Programmierung von TAB "2" für die Anzahl der Stellen nach dem Dezimalpunkt für die Inlandswährung.
8. Veränderung der bestehenden Einstellungen für den Währungstext und der Anzahl der Stellen nach dem Dezimalpunkt bei der Fremdwährung 1 zu den Einstellwerten, die für die Inlandswährung gewählt wurden (Job #2330 und #2334).
9. Programmierung für das Aktivieren der Rundungsfunktion für die Fremdwährung.

Nach der Ausführung des Verfahrens mit dem Ersatz von "2" ist der EURO als Inlandswährung und die nationale Währung als Fremdwährung zu betrachten. Hierfür die Fremdwährungstaste 1 (EX1) benutzen. Da der EURO nach der Ausführung des Verfahrens mit dem Ersatz von "2" zu Ihrer Inlandswährung wird, müssen die Festpreise für jede Warengruppe und PLU verändert werden, um diese den EURO-Preisen vor der erneuten Bedienung der Registrierkasse anzugleichen. Eine Reihe anderer Tasten müssen ebenfalls umprogrammiert werden, damit Prozentwerte und Summen auf dem EURO basieren.

#### Wenn für "A" "3" gesetzt wird:

1. Ausstellung eines allgemeinen Z1-Berichts (Job #100).
2. Ausstellung eines allgemeinen Z2-Berichts (Job #200).
3. Rückstellung von GT1, GT2 und GT3.
4. Programmierung von "Nein" für die PGM-Funktion "Ausdruck der Gesamtsumme für die Fremdwährung 1 und des Wechselgeldbetrags auf dem Kassenbon und Journalstreifen" (Job #2616).
5. Programmierung von "Nein" für die PGM-Funktion "Ausdruck der Gesamtsumme für die Fremdwährung 1 auf dem Quittungsdruckformular" (Job #2616). [Nur für ER-A440]
6. Programmierung von "Multiplikation" für die PGM-Funktion "Berechnungsmethode für die Fremdwährung 1" (Job #2616).
7. Veränderung des Inlandswährungssymbols zum EURO-Symbol ( € ) sowie Programmierung von TAB "2" für die Anzahl der Stellen nach dem Dezimalpunkt bei der Inlandswährung.
8. Überschreiben des Währungstexts von der Fremdwährung 1 (mit Leerstellen) (Job #2334).
9. Programmierung für das Aktivieren der Rundungsfunktion für die Fremdwährung.

Nach der Ausführung des Verfahrens mit dem Ersatz von "3" ist der EURO als Inlandswährung zu betrachten. Wenn der Vorgang mit dem Ersatz von "2" bereits ausgeführt wurde, so wird "3. Rückstellung von GT1, GT2 und GT3" nicht ausgeführt.

## ■ Zusätzliche Programmierung für die Einführung des EURO PGM 1 PGM 2

Der Inhalt der Programmierung für die Fremdwährung-1-Funktion (EX1) läßt sich mit der Ausführung von Job #800 (im vorherigen Abschnitt beschrieben) nicht verändern.

Nach der Ausführung für jeden einzelnen Zeitraum ist die folgende Programmierung je nach Kundenwunsch auszuführen.

### Programmierung für Fremdwährung 1 (EX1)

#### Fremdwährungs-Umrechnungskurs (Job #1310)

Für die Zeiträume 1 und 2 ist der EURO-Umrechnungskurs einzugeben.

Für nähere Einzelheiten der Programmierung beziehen Sie sich bitte auf Ihre Bedienungsanleitung.

#### Scheck/Kreditzahlung (Job #2616)

Diese Programmierung wird bei der Einführung des EURO erforderlich. Bitte beziehen Sie sich auf den Abschnitt "Programmierung für zusätzliche Funktionswahl" in dieser Ergänzung.

#### Zuweisung der Schubladenummer für Fremdwährung (Job #2680)

Es ist vielleicht empfehlenswert zwei Schubladen für den EURO (als Inlandswährung) und der nationalen Währung (als Fremdwährung in Fremdwährung 1 programmiert) zu haben, wenn beide Währungen nebeneinander bestehen (Zeitraum 2). In diesem Fall muß diese Programmierung ausgeführt werden. Für nähere Einzelheiten der Programmierung beziehen Sie sich bitte auf Ihre Bedienungsanleitung.

## ■ Programmierung für zusätzliche Funktionswahl PGM 2 2616

Für das Programmierverfahren beziehen Sie sich bitte auf Ihre Bedienungsanleitung.

**Hinweis** • Einige Positionen unter "P: 9" sind neu hinzugefügte Funktionen für die Einführung des EURO. Diese sind nicht in Ihrer Bedienungsanleitung aufgeführt.

P: 9

### **Berechnungsmethode für Fremdwährung 1**

Für die Umrechnungsmethode von Inlandswährung zu Fremdwährung 1 kann "Division" oder "Multiplikation" angewählt werden. Die Berechnung wird dann wie folgt durchgeführt:

Wenn für den Zeitraum 1 "Division" gewählt wurde:

Inlandswährung (nationale Währung) ÷ Fremdwährungs-Umrechnungskurs (EURO-Umrechnungskurs) = Betrag der Fremdwährung 1 (EURO-Betrag)

Wenn für den Zeitraum 2 "Multiplikation" gewählt wurde:

Inlandswährung (EURO-Betrag) × Fremdwährungs-Umrechnungskurs (EURO-Umrechnungskurs) = Betrag der Fremdwährung 1 (nationaler Währungsbetrag)

### **Ausdruck des Fremdwährungsbetrags 1 sowie des Wechselgeldbetrags auf dem Kassenbon/Journalstreifen**

Gesamt- und Wechselgeldbeträge werden in Inlandswährung und Fremdwährung ausgedruckt.

Im Zeitraum 1 wird der aus der Inlandswährung konvertierte EURO unter der Inlandswährung ausgedruckt. Im Zeitraum 2 wird die von EURO konvertierte Inlandswährung ausgedruckt.

### **Quittungsdruck des Fremdwährung-1-Gesamtbetrags [nur für ER-A440]**

Der aus dem Gesamtumsatz konvertierte Fremdwährung-1-Betrag kann als Gesamtbetrag auf der Quittung ausgedruckt werden, wenn die Zahlung in bar, mit Scheck oder Kredit ausgeführt wird.

### **Bar-/Kreditzahlung für Fremdwährung 1**

Die Registrierkasse läßt sich für den Empfang Scheck- oder Kreditzahlung in Fremdwährung (Fremdwährung 1) programmieren, wenn dies gewünscht wird.

P: 9

Positionen:	Auswahl:	Eingabe:
<b>A</b> Immer 0 eingeben.		0
<b>B</b> Berechnungsmethode für Fremdwährung 1	Multiplikation	0
	Division	1
<b>C</b> Scheck-/Kreditzahlung für Fremdwährung 1	Nein	0
	Ja	1
<b>D</b> Ausdruck des Fremdwährungsbetrags 1 sowie des Wechselgeldbetrags auf dem Kassenbon/Journalstreifen	Nein	0
	Ja	1
<b>E</b> Quittungsdruck des Fremdwährung-1-Gesamtbetrags	Nein	0
	Ja	1
<b>F und G</b> Immer 0 eingeben		0
<b>H</b> Graphisches Logo in der Fußzeile	Nein	0
	Ja	1

**Hinweis** • Wenn es sich um das Modell ER-A440 handelt, immer eine 0 für Position H eingeben.  
 • Wenn es sich um das Modell ER-A450 handelt, immer eine 0 für Position E eingeben.  
 • Die Positionen B, D und E werden durch die Ausführung von Job #800 automatisch eingestellt.

## ■ Programmierung der Dezimalstellen (TAB) für die Fremdwährungstasten

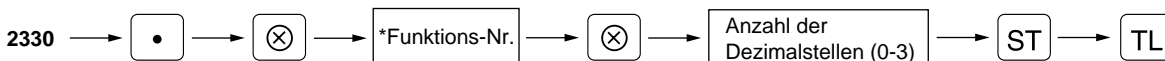
PGM 2

2330

### Hinweis

- Diese neu hinzugefügten Funktionen für die Einführung des EURO sind nicht in Ihrer Bedienungsanleitung enthalten.
- Die Programmierung für die Fremdwährung-1-Taste wird durch die Ausführung von Job #800 automatisch erzielt.

### Verfahren



\*Funktions-Nr.:

52: Für die Taste EX1

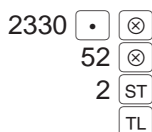
53: Für die Taste EX2

54: Für die Taste EX3

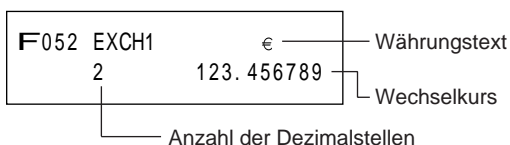
55: Für die Taste EX4

### Beispiel

#### Tastenbedienung



#### Druck

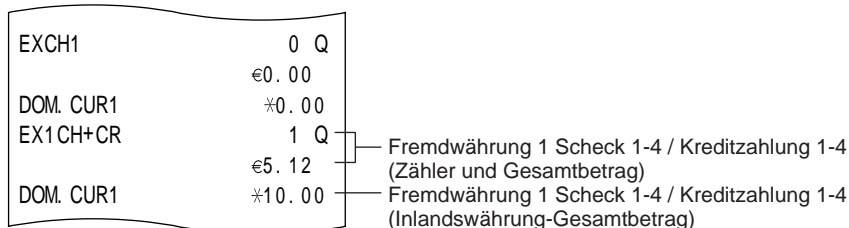


## ■ Scheck-/Kreditzahlung im REG-Modus

Wenn die Registrierkasse für Scheck-/Kreditzahlung bei der Programmierung von Job #2616 auf "Ja" eingestellt ist, lassen sich Scheck- und Kreditzahlungen für den Fremdwährung-1-Betrag ausführen. Im Zeitraum 1 können Scheck- und Kreditzahlungen in EURO durchgeführt werden.

Der als Scheck- oder Kreditzahlung empfangene Fremdwährung-1-Betrag wird auf den Berichten (#100, 200, 130, 230, 131, 231, 50, 150, 250, 51, 151 und 251) wie nachfolgend gezeigt ausgedruckt.

### Berichtsbeispiel:



Der entsprechende Funktionstext kann verändert werden. Für das Programmierverfahren beziehen Sie sich bitte auf Ihre Bedienungsanleitung.

Die Funktions-Nr. und der Standardtext sind wie folgt:

Funktions-Nr.	Funktion	Standardtext
140	Scheck- und Kreditumsatz für Fremdwährung 1	EX1CH+CR
141	Scheck- und Kreditumsatz Inlandswährung für Fremdwährung 1	DOM.CUR1

## ■ Avant les réglages de l'enregistreuse pour l'introduction de l'EURO

Concernant l'introduction de l'EURO, votre enregistreuse est réglée pour utiliser la fonction de change 1 (touche (EX1)), et, selon la condition où l'EURO est introduit sur le marché, trois périodes sont réglées comme il est montré dans le tableau ci-dessous.

Dans son principe, votre enregistreuse peut être modifiée automatiquement pour correspondre à l'introduction de l'EURO en exécutant l'opération de travail N° 800 sur le mode X2/Z2. Cependant, il y a plusieurs options que vous pouvez choisir selon vos besoins. Aussi, veuillez lire attentivement cette brochure et effectuer les réglages nécessaires.

### Comment les monnaies sont traitées dans votre enregistreuse

	Période 1	Période 2	Période 3
	Après l'introduction de l'EURO et avant que les billets de banque et les pièces de monnaie EURO commencent à circuler.	Après que les billets de banque et les pièces de monnaie EURO commencent à circuler et avant que la monnaie nationale ne soit retirée de la circulation. (Coexistence de l'EURO et de la monnaie nationale)	Une fois que la monnaie nationale est retirée de la circulation.
Monnaie	EURO	Change 1	Monnaie domestique
	Monnaie nationale (DM, F, etc.)	Monnaie domestique	Change 1
	Monnaie étrangère	Change 2 à Change 4	Change 2 à Change 4

### Exemples de reçus:

#### Période 1

DPT. 01	¥1. 00	
DPT. 02	¥2. 00	
***TOTAL	¥3. 00	Montant total des ventes dans la monnaie nationale (en tant que monnaie domestique)
	€1. 56	Montant total des ventes en EURO*
CASH	¥5. 00	Somme présentée dans la monnaie nationale
CHANGE	¥2. 00	Rendu dans la monnaie nationale
	€1. 04	Rendu en EURO*

\*: Ces chiffres ne sont imprimés que pour renseigner.

#### Période 2

DPT. 01	€0. 52	
DPT. 02	€1. 04	
***TOTAL	€1. 56	Montant total des ventes en EURO (en tant que monnaie domestique)
	¥2. 99	Montant total des ventes dans la monnaie nationale*
CASH	€2. 00	Somme présentée en EURO
CHANGE	€0. 44	Rendu en EURO
	¥0. 84	Rendu dans la monnaie nationale*

\*: Ces chiffres ne sont imprimés que pour renseigner.

#### Période 3

DPT. 01	€0. 52
DPT. 02	€1. 04
***TOTAL	€1. 56
CASH	€2. 00
CHANGE	€0. 44

## ■ Modification automatique du système de l'enregistreuse pour l'introduction de l'EURO

X2/Z2

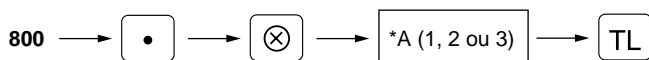
800

### Nota

- Veuillez noter que ce qui suit diffère de ce qui se trouve dans votre manuel d'instructions.

Pour que votre machine puisse concorder à l'introduction de l'EURO, le système de votre enregistreuse peut être automatiquement modifié lorsque la procédure montrée ci-dessous est exécutée sur le mode X2/Z2. Suivant les étapes de l'introduction, vous pouvez faire en sorte que votre enregistreuse puisse traiter le système EURO.

### Procédure



\*A=1: Applicable à la période 1

\*A=2: Applicable à la période 2

\*A=3: Applicable à la période 3

### Nota

- Vous ne pouvez effectuer chaque opération qu'une fois avec la substitution de "A = 1", "A = 2" et "A = 3". Si vous exécutez l'opération avec d'abord la substitution de "A = 2", vous ne pourrez effectuer l'opération avec la substitution de "A = 1". Si vous exécutez l'opération avec d'abord la substitution de "A = 3", vous ne pourrez effectuer l'opération avec la substitution de "A = 1" et "A = 2".

Les détails concernant la modification du système de l'enregistreuse sont les suivants:

#### Lorsque "1" est substitué à "A":

1. Etablissement d'un rapport général Z1 (travail N° 100).
2. Etablissement d'un rapport général Z2 (travail N° 200).
3. Choix de "Oui" pour la fonction de programmation "Impression du montant total d'un change 1 et du montant d'un rendu sur un reçu et une bande de détails" (travail N° 2616).
4. Choix de "Oui" pour la fonction de programmation "Impression du montant total d'un change 1 sur une impression de validation" (travail N° 2616) <seulement pour la ER-A440>.
5. Choix de "Division" pour la fonction de programmation "Méthode de calcul d'un change 1" (travail N° 2616).
6. Choix du symbole EURO (€) pour le texte descriptif de la monnaie du Change 1 (travail N° 2334) et choix de "2" pour le nombre de chiffres après le point de décimalisation du Change 1 (travail N° 2330).
7. Choix de la fonction d'arrondissement permettant le change d'une monnaie.

Après l'exécution de la procédure avec la substitution de "1", traitez l'EURO en tant que monnaie étrangère en utilisant le Change 1 (EX1).

#### Lorsque "2" est substitué à "A":

1. Etablissement d'un rapport général Z1 (travail N° 100).
2. Etablissement d'un rapport général Z2 (travail N° 200).
3. Remise à zéro des totaux généraux GT1, GT2 et GT3.
4. Choix de "Oui" pour la fonction de programmation "Impression du montant total d'un change 1 et du montant d'un rendu sur un reçu et une bande de détails" (travail N° 2616).
5. Choix de "Oui" pour la fonction de programmation "Impression du montant total d'un change 1 sur une impression de validation" (travail N° 2616) <seulement pour la ER-A440>.
6. Choix de "Multiplication" pour la fonction de programmation "Méthode de calcul d'un change 1" (travail N° 2616).
7. Changement du symbole de la monnaie domestique pour le symbole EURO (€) et réglage du nombre de chiffres après le point de décimalisation de la monnaie domestique sur 2.

8. Changement des réglages du texte descriptif de la monnaie et du nombre de chiffres après le point de décimalisation du Change 1 sur ceux qui ont été choisis pour la monnaie domestique (travaux N° 2330 et N° 2334).
9. Choix de la fonction d'arrondissement permettant le change d'une monnaie.

Après l'exécution de la procédure avec la substitution de "2", traitez l'EURO en tant que monnaie domestique, et la monnaie nationale en tant que monnaie étrangère en utilisant le Change 1 (EX1).

Etant donné que l'EURO devient la monnaie nationale de votre pays après l'exécution de la procédure avec la substitution de "2", vous devez changer les prix unitaires pour chacun des rayons et des PLU (prix par article déjà programmé) pour qu'ils puissent correspondre aux prix EURO avant que vous ne commenciez effectivement la remise en marche de votre enregistreuse. Comme pour les diverses touches, veuillez aussi modifier les taux ou les montants de façon à ce qu'ils soient basés sur des montants en EURO.

#### **Lorsque "3" est substitué à "A":**

1. Etablissement d'un rapport général Z1 (travail N° 100).
2. Etablissement d'un rapport général Z2 (travail N° 200).
3. Remise à zéro des totaux généraux GT1, GT2 et GT3.
4. Choix de "Non" pour la fonction de programmation "Impression du montant total d'un change 1 et du montant d'un rendu sur un reçu et une bande de détails" (travail N° 2616).
5. Choix de "Non" pour la fonction de programmation "Impression du montant total d'un change 1 sur une impression de validation" (travail N° 2616) <seulement pour la ER-A440>.
6. Choix de "Multiplication" pour la fonction de programmation "Méthode de calcul d'un change 1" (travail N° 2616).
7. Changement du symbole de la monnaie domestique pour le symbole EURO (€) et réglage du nombre de chiffres après le point de décimalisation de la monnaie domestique sur 2.
8. Recouvrement du texte descriptif de la monnaie du Change 1 complètement avec les espaces (travail N° 2334).
9. Choix de la fonction d'arrondissement permettant le change d'une monnaie.

Après l'exécution de la procédure avec la substitution de "3", traitez l'EURO en tant que monnaie nationale. Lorsque l'opération de la substitution de "2" a déjà été effectuée, "3. Remise à zéro des totaux généraux GT1, GT2 et GT3" n'est pas exécuté.

## **■ Programmation optionnelle pour l'introduction de l'EURO** PGM 1 PGM 2

La programmation se rapportant avec la fonction de change 1 (EX1) ne peut être changée automatiquement avec l'exécution du travail N° 800 décrit dans la section précédente. Après l'exécution de chaque période, effectuez la programmation suivante selon vos besoins.

### **Programmation pour le Change 1 (EX1)**

#### **Taux de change d'une monnaie (Travail N° 1310)**

Pour la période 1 et la période 2, réglez sur le taux de conversion EURO.

Pour la programmation des détails, veuillez vous référer à votre manuel d'instructions.

#### **Opération de chèque/crédit (Travail N° 2616)**

Cette programmation est nouvellement ajoutée pour l'introduction de l'EURO. Veuillez vous référer à "Programmation pour un choix de fonctions facultatives" dans cette brochure.

#### **Affectation du numéro d'un tiroir au tiroir pour la monnaie étrangère (Travail N° 2680)**

Il peut être pratique d'avoir deux tiroirs pour l'EURO (en tant que monnaie domestique) et pour la monnaie nationale (en tant que monnaie étrangère réglée sur le Change 1) lorsque ces deux monnaies coexistent (période 2). Dans ce cas, effectuez cette programmation.

Pour la programmation des détails, veuillez vous référer à votre manuel d'instructions.



Pour la procédure de la programmation, veuillez vous référer au manuel d'instructions.

## Nota

- Certains article à "P:9" sont des fonctions nouvellement ajoutées pour l'introduction de l'EURO, fonctions qui ne sont pas décrites dans votre manuel d'instructions.

P: 9

### Méthode de calcul pour le change 1

"Division" ou "Multiplication" peut être choisie pour la méthode de conversion d'une monnaie domestique à la monnaie d'un change 1, et le calcul est effectué de la manière suivante:

Dans le cas où "Division" est choisie pour la période 1,

Montant de la monnaie domestique (montant de la monnaie nationale) ÷ Taux du change 1 (taux de conversion EURO) = Montant du change 1 (montant EURO)

Dans le cas où "Multiplication" est choisie pour la période 2,

Montant de la monnaie domestique (montant EURO) × Taux du change 1 (taux de conversion EURO) = Montant du change 1 (montant de la monnaie nationale)

### Impression du montant total d'un Change 1 et du montant d'un rendu sur un reçu/bande de détails

Les montants du total et du rendu dans la monnaie du Change 1 sont respectivement imprimés au-dessous de chacun des montants du total et du change dans la monnaie domestique.

Dans la période 1, le montant EURO converti à partir de la monnaie nationale, est imprimé au-dessous de la monnaie nationale et, dans la période 2, la monnaie nationale convertie à partir du montant EURO est imprimée.

### Impression de validation du montant total d'un Change 1 <seulement pour la ER-A440>

Le montant du Change 1, converti à partir du montant des ventes globales, peut être imprimé sur l'impression de validation pour le montant total lorsque l'offre du montant d'un chèque ou d'un crédit au comptant est effectuée.

### Opération de comptant/crédit pour le Change 1

Vous pouvez régler ainsi, si vous recevez le montant de la monnaie étrangère (change 1) par chèque ou par crédit.

P: 9

Article:	Choix:	Entrée:
<b>A</b> Introduire toujours 0.		0
<b>B</b> Méthode de calcul du Change 1	Multiplication	0
	Division	1
<b>C</b> Opération chèque/crédit pour Change 1	Non	0
	Oui	1
<b>D</b> Impression du montant total du change 1 et montant du rendu sur le reçu/bande de détails	Non	0
	Oui	1
<b>E</b> Impression du montant total du change 1 sur l'impression de validation	Non	0
	Oui	1
<b>F et G</b> Introduire toujours 0.		0
<b>H</b> Impression d'un logo graphique en bas du reçu	Non	0
	Oui	1

## Nota

- Dans le cas où votre enregistreuse est la ER-A440, introduisez toujours 0 pour l'article H.
- Dans le cas où votre enregistreuse est la ER-A450, introduisez toujours 0 pour l'article E.
- Les articles B, D et E sont automatiquement réglés par l'opération du travail N° 800.



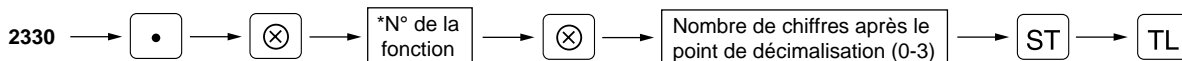
## ■ Programmation du nombre de chiffres après le point de décimalisation pour les touches de change

PGM 2 2330

### Nota

- C'est une fonction nouvellement ajoutée pour l'introduction de l'EURO et qui n'est pas décrite dans votre manuel d'instructions.
- Cette programmation pour la touche de Change 1 s'effectue automatiquement avec l'exécution du travail N° 800.

### Procédure



\*N° de la fonction:

52: Pour la touche EX1 53: Pour la touche EX2 54: Pour la touche EX3 55: Pour la touche EX4

### Exemple

#### Manipulation des touches

2330 [.] [X]  
52 [X]  
2 [ST]  
[TL]

#### Impression

F052 EXCH1	€	
2	123. 456789	

Texte descriptif de la monnaie  
Taux de change  
Nombre de chiffres après le point de décimalisation

## ■ Change de la monnaie sur le mode d'enregistrement

Si vous choisissez "Oui" pour l'opération de chèque/crédit pour EX1 avec la programmation du travail N° 2616, vous pouvez traiter un chèque et un crédit pour le montant du Change 1. Par exemple, dans la période 1, vous pouvez recevoir un chèque et un crédit en EURO lorsqu'ils sont traités sur le mode de Change 1 en tant que monnaie étrangère.

Le montant du Change 1 reçu en chèque et crédit est imprimé sur les rapports (N° 100, N° 200, N° 130, N° 230, N° 131, N° 231, N° 50, N° 150, N° 250, N° 51, N° 151 et No 251), comme il est montré ci-dessous.

### Exemple d'un rapport:

EXCH1	0 Q	
	€0. 00	
DOM. CUR1	*0. 00	
EX1CH+CR	1 Q	
	€5. 12	
DOM. CUR1	*10. 00	

Compteur et total de chèque 1 - 4/crédit 1 - 4 du change 1  
Total de chèque 1 - 4/crédit 1 - 4 du change 1 dans la monnaie nationale

Vous pouvez changer le texte de la fonction utilisée pour un rapport avec le travail N° 2314 sur le mode PGM2. Pour la procédure de la programmation, référez-vous à votre manuel d'instructions.

Le N° de la fonction et le réglage implicite sont les suivants:

N° de la fonction	Fonction	Réglage implicite
140	Ventes par chèque + crédit du change 1	EX1CH+CR
141	Monnaie nationale pour ventes par chèque + crédit du change 1	DOM.CUR1

## ■ Antes de realizar los ajustes de la caja registradora para la introducción del EURO

Para la introducción del EURO, la caja registradora está ajustada para emplear la función de divisas 1 (tecla (EX1)) y dependiendo de la fecha de introducción del EURO en el mercado, se han ajustado tres períodos como se muestra en la tabla de abajo.

Básicamente, la caja registradora puede modificarse automáticamente para corresponder con la introducción del EURO ejecutando la operación de la tarea N.º 800 en el modo X2/Z2. Sin embargo, hay algunas opciones que usted deberá seleccionar dependiendo de sus necesidades. Por lo tanto, lea este folleto y realice los ajustes necesarios.

### Cómo se tratan las monedas en su caja registradora

	Período 1	Período 2	Período 3
	Después de la introducción del EURO, y antes de que empiecen a circular las monedas y billetes de EURO	Después de haber empezado a circular las monedas y billetes de EURO, y antes de retirar de la circulación la moneda nacional (Coexistencia del EURO con la moneda nacional)	Después de retirar de la circulación la moneda nacional
<b>Moneda</b>	EURO	Divisas 1	Moneda nacional
	Moneda nacional (DM, F, etc.)	Moneda nacional	Divisas 1
	Divisas	Divisas 2 a divisas 4	Divisas 1 a divisas 4

### Muestras de recibos:

#### Período 1

DPT. 01	¥1.00
DPT. 02	¥2.00
***TOTAL	¥3.00
	€1.56
CASH	¥5.00
CHANGE	¥2.00
	€1.04

Importe total de ventas en moneda nacional (como moneda nacional)  
 Importe total de ventas en EURO\*  
 Importe recibido en moneda nacional  
 Vuelta en moneda nacional  
 Vuelta en EURO\*

\*: Se imprimen sólo con motivo de información.

#### Período 2

DPT. 01	€0.52
DPT. 02	€1.04
***TOTAL	€1.56
	¥2.99
CASH	€2.00
CHANGE	€0.44
	¥0.84

Importe total de ventas en EURO (como moneda nacional)  
 Importe total de ventas en moneda nacional\*  
 Importe recibido en EURO  
 Vuelta en EURO  
 Vuelta en moneda nacional\*

\*: Se imprimen sólo con motivo de información.

#### Período 3

DPT. 01	€0.52
DPT. 02	€1.04
***TOTAL	€1.56
CASH	€2.00
CHANGE	€0.44

## ■ Modificación automática del sistema de la caja registradora para la introducción del EURO

X2/Z2

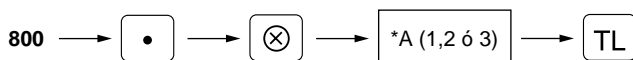
800

### Nota

- Tenga presente que este contenido se ha cambiado del incluido en el manual de instrucciones.

Para que su caja registradora satisfaga la introducción del EURO, el sistema de la caja registradora podrá modificarse automáticamente cuando se ejecute el procedimiento siguiente en el modo X2/Z2. De acuerdo con los pasos de la introducción, podrá hacer que la registradora pueda funcionar con el EURO.

### Procedimiento



\*A=1: Aplicable en el período 1

\*A=2: Aplicable en el período 2

\*A=3: Aplicable en el período 3

### Nota

- Podrá efectuar cada operación sólo una vez con la sustitución de "A=1", A=2" y "A=3". Si efectúa la operación con la sustitución de "A=2" primero, no podrá efectuar la operación con la sustitución de "A=1". Si efectúa la operación con la sustitución de "A=3" primero, no podrá efectuar la operación con la sustitución de "A=1" ni "A=2".

A continuación se dan los detalles de la modificación del sistema de la caja registradora:

#### Cuando "1" se sustituye por "A":

1. Emisión de un informe general Z1 (Tarea #100)
2. Emisión de un informe general Z2 (Tarea #200)
3. Selección de "Sí" para una función PGM "Impresión del importe total de cambio de divisas 1 e importe de la vuelta en el recibo y registro diario" (Tarea #2616)
4. Selección de "Sí" para una función PGM "Impresión del importe total de cambio de divisas 1 en impresión de validación" (Tarea #2616) <sólo para la ER-A440>
5. Selección de "División" para una función PGM "Método de cálculo de cambio de divisas 1" (Tarea #2616)
6. Selección del símbolo del EURO (€) para el texto de descripción de moneda de cambio de divisas 1 (Tarea #2334) y selección de "2" para el número de dígitos de detrás del punto decimal de cambio de divisas 1 (Tarea #2330)
7. Selección de habilitación de la función de redondeo para cambio de divisas

Después de la ejecución del procedimiento con la sustitución de "1", trate el EURO como moneda extranjera empleando cambio de divisas 1 (EX1).

#### Cuando "2" se sustituye por "A":

1. Emisión de un informe general Z1 (Tarea #100)
2. Emisión de un informe general Z2 (Tarea #200)
3. Reposición de GT1, GT2, y GT3
4. Selección de "Sí" para una función PGM "Impresión del importe total de cambio de divisas 1 e importe de la vuelta en el recibo y registro diario" (Tarea #2616)
5. Selección de "Sí" para una función PGM "Impresión del importe total de cambio de divisas 1 en impresión de validación" (Tarea #2616) <sólo para la ER-A440>
6. Selección de "Multiplicación" para una función PGM "Método de cálculo de cambio de divisas 1" (Tarea #2616)
7. Cambio del símbolo de la moneda nacional al símbolo del EURO (€) y ajuste del número de dígitos de detrás del punto decimal de la moneda nacional a 2

8. Cambio de los ajustes del texto de descripción de moneda y el número de dígitos de detrás del punto decimal de cambio de divisas 1 a los ajustes seleccionados para la moneda nacional (Tareas #2330 y #2334)
9. Selección de habilitación de la función de redondeo para cambio de divisas

Después de la ejecución del procedimiento con la sustitución de “2”, trate el EURO como moneda nacional y la moneda nacional como divisas empleando cambio de divisas 1 (EX1).

Puesto que el EURO pasa a ser la moneda nacional después de la ejecución del procedimiento con la sustitución de “2”, deberá cambiar los precios unitarios para cada sección y PLU para que correspondan con los precios en EURO antes de realmente reiniciar la operación de la caja registradora. En cuanto a las teclas misceláneas, cambie también los índices de precios o importes de modo que se basen en importes en EURO.

#### **Cuando “3” se sustituye por “A”:**

1. Emisión de un informe general Z1 (Tarea #100)
2. Emisión de un informe general Z2 (Tarea #200)
3. Reposición de GT1, GT2, y GT3
4. Selección de “No” para una función PGM “Impresión del importe total de cambio de divisas 1 e importe de la vuelta en el recibo y registro diario” (Tarea #2616)
5. Selección de “No” para una función PGM “Impresión del importe total de cambio de divisas 1 en impresión de validación” (Tarea #2616) <sólo para la ER-A440>
6. Selección de “Multiplicación” para una función PGM “Método de cálculo de cambio de divisas 1” (Tarea #2616)
7. Cambio del símbolo de la moneda nacional al símbolo del EURO (€) y ajuste del número de dígitos de detrás del punto decimal de la moneda nacional a 2
8. Sobreescritura del texto de descripción de moneda de cambio de divisas 1 completamente con espacios (Tarea #2334)
9. Selección de habilitación de la función de redondeo para cambio de divisas

Después de la ejecución del procedimiento con la sustitución de “3”, trate el EURO como moneda nacional. Cuando ya se ha efectuado la operación con la sustitución de “2”, “3. Reposición de GT1, GT2, y GT3” no se ejecuta.

## **■ Programación opcional para la introducción del EURO** PGM 1 PGM 2

La programación relacionada con la función de cambio de divisas 1 (EX1) no puede cambiarse automáticamente con la ejecución de la tarea #800 descrita en la sección anterior. Después de la ejecución para cada período, realice la programación siguiente dependiendo de sus necesidades.

### **Programación para cambio de divisas 1 (EX1)**

#### **Tasa de cambio de divisas (Tarea #1310)**

Para el período 1 y período 2, ajuste la tasa de cambio del EURO.

Para los detalles de la programación, consulte el manual de instrucciones.

#### **Operación de cheques/crédito (Tarea #2616)**

Esta programación se ha añadido recientemente para la introducción del EURO. Consulte el apartado de “Programación para selección de funciones opcionales” en este folleto.

#### **Asignación del número de cajón al cajón para moneda extranjera (Tarea #2680)**

Puede resultar conveniente tener dos cajones para el EURO (como moneda nacional) y para la moneda nacional (como divisas en cambio de divisas 1) cuando ambas monedas coexisten (período 2). En este caso, lleve a cabo esta programación.

Para los detalles de la programación, consulte el manual de instrucciones.

Para los detalles de la programación, consulte el manual de instrucciones.

## Nota

- Algunos de los elementos de "P:9" son funciones recientemente añadidas para la introducción del EURO, que no se describen en el manual de instrucciones.

P: 9

### Método de cálculo de cambio de divisas 1

Puede seleccionarse "División" o "Multiplicación" para el método de conversión de moneda nacional a moneda de divisas 1, y el cálculo se realiza de la forma siguiente:

En el caso de seleccionar "División" para el período 1,

Importe de moneda nacional (importe de moneda propia) ÷ Tasa de cambio de divisas 1 (tasa de cambio del EURO) = Importe de cambio de divisas 1 (importe en EURO)

En el caso de seleccionar "Multiplicación" para el período 2,

Importe de moneda nacional (importe en EURO) × Tasa de cambio de divisas 1 (tasa de cambio del EURO) = Importe de cambio de divisas 1 (importe en moneda nacional)

### Impresión del importe total de cambio de divisas 1 e importe de la vuelta en el recibo/registro diario

Los importes total y de vuelta de cambio de divisas 1 se imprimen respectivamente debajo de los importes del total y de cambio de divisas en moneda nacional.

En el período 1, el importe en EURO que se convierte desde moneda nacional se imprime debajo de la moneda nacional, y en el período 2, se imprime la moneda nacional convertida desde el importe en EURO.

### Impresión de validación del importe total de cambio de divisas 1 <sólo para la ER-A440>

El importe de cambio de divisas 1 convertido desde el importe total de ventas puede imprimirse en la impresión de validación para el importe total cuando el importe se recibe en metálico, cheque, o crédito.

### Operación de metálico/crédito para cambio de divisas 1

Podrá ajustar si recibe el importe de divisas (cambio de divisas 1) en cheque o crédito, o en ninguno de los dos.

P: 9

Elemento:	Selección:	Registro:
<b>A</b> Registrar siempre 0.		0
<b>B</b> Método de cálculo de cambio de divisas 1	Multiplicación	0
	División	1
<b>C</b> Operación de cheque/crédito para cambio de divisas 1	No	0
	Sí	1
<b>D</b> Impresión del importe total de cambio de divisas 1 e importe de la vuelta en el recibo y registro diario	No	0
	Sí	1
<b>E</b> Impresión del importe total de cambio de divisas 1 en impresión de validación	No	0
	Sí	1
<b>F y G</b> Registrar siempre 0.		0
<b>H</b> Impresión del logotipo gráfico en el pie del recibo	No	0
	Sí	1

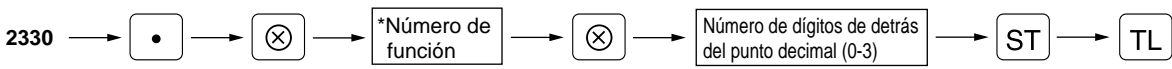
## Nota

- En el caso de que su caja registradora sea la ER-A440, registre siempre 0 para el elemento H.
- En el caso de que su caja registradora sea la ER-A450, registre siempre 0 para el elemento E.
- Los elementos B, D, y E se ajustan automáticamente mediante la operación de la tarea #800.

■ **Programación del número de dígitos de detrás del punto decimal para las teclas de cambio de divisas** PGM 2 2330

- Nota
- Esta función se ha añadido recientemente para la introducción del EURO y no se describe en el manual de instrucciones.
  - Esta programación para la tecla de cambio de divisas 1 se efectúa automáticamente con la ejecución de la tarea #800.

Procedimiento



\*Número de función:  
52: Para la tecla EX1      53: Para la tecla EX2      54: Para la tecla EX3      55: Para la tecla EX4

Ejemplo

Operación de teclas

2330 • ⊗  
52 ⊗  
2 ST  
TL

Impresión

F052 EXCH1  
2 123. 456789

€ —

Texto de descripción de la moneda  
Tasa de cambio  
Número de dígitos de detrás del punto decimal

■ **Cambio de divisas en el modo REG**

Si selecciona “Sí” para la operación de cheque/crédito para EX1 en la programación de la tarea #2616, podrá manipular cheques y crédito para el importe de cambio de divisas 1. Por ejemplo, en el período 1, podrá recibir cheques y crédito en EURO cuando se trate en cambio de divisas 1 como divisas.

El importe de cambio de divisas 1 recibido en cheque y crédito se imprime en los informes (#100, #200, #130, #230, #131, #231, #50, #150, #250, #51, #151 y #251) como se muestra a continuación.

Muestra de informe:

EXCH1 0 Q  
€0. 00  
DOM. CUR1 \*0. 00  
EX1CH+CR 1 Q  
€5. 12  
DOM. CUR1 \*10. 00

Contador y total de cheque 1-4/crédito 1-4 de cambio de divisas 1  
Total de cheque 1-4/crédito 1-4 de cambio de divisas 1 en moneda nacional

Podrá cambiar el texto de la función empleado para el informe con la tarea #2314 en el modo PGM2. Para ver el procedimiento de programación, consulte el manual de instrucciones.

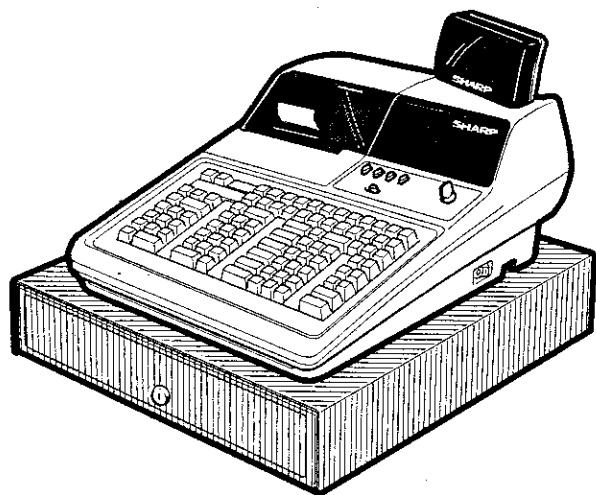
El número de función y el texto de ajuste inicial son como sigue:

N.º de función	Función	Ajuste inicial
140	Ventas con cheque + crédito de cambio de divisas 1	EX1CH+CR
141	Moneda nacional para ventas con cheque + crédito de EX1	DOM.CUR1



# SHARP SERVICE MANUAL

CODE: 00ZERA610VSME



## ELECTRONIC CASH REGISTER

### MODEL ER-A610

SRV Key : LKGIM7113RCZZ  
 PRINTER: M-820  
 (For "V" version)

#### CAUTION

EXTREME CAUTION MUST BE TAKEN WHEN SERVICING THIS MACHINE. EVEN THOUGH THE MODE SWITCH IS IN THE  $\odot$  POSITION, VOLTAGE IS STILL SUPPLIED TO THE ENTIRE MACHINE.

WHEN WORKING ON THIS MACHINE MAKE SURE THAT THE POWER CORD IS REMOVED FROM THE WALL OUTLET.

#### CONTENTS

CHAPTER 1. SPECIFICATIONS .....	1
CHAPTER 2. OPTIONS .....	5
CHAPTER 3. SRV. RESET AND MASTER RESET .....	8
CHAPTER 4. HARD WARE DESCRIPTION .....	9
CHAPTER 5. TEST FUNCTION .....	35
CHAPTER 6. DOWN LOAD FUNCTION .....	45
CHAPTER 7. SERVICE PRECAUTION .....	47
CHAPTER 8. CIRCUIT DIAGRAM & PWB LAYOUT .....	49

#### PARTS GUIDE

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

**SHARP CORPORATION**

This document has been published to be used  
 for after sales service only.  
 The contents are subject to change without notice.



# CHAPTER 1. SPECIFICATIONS

## 1. Appearance/Rating

### 1) Appearance

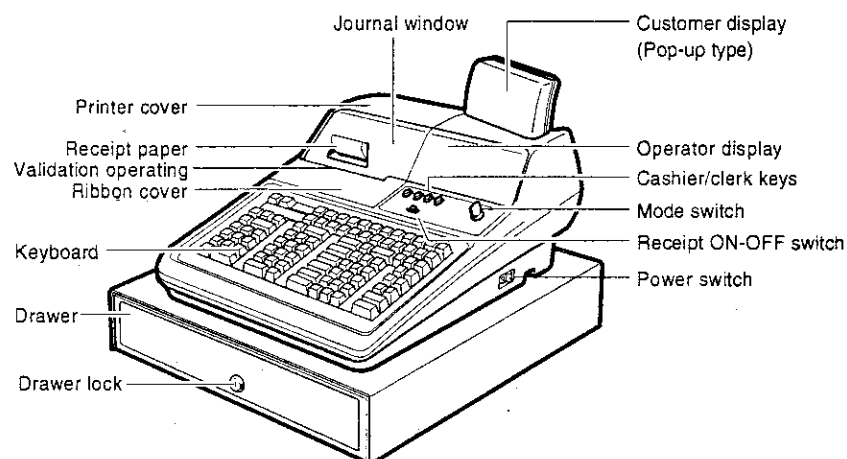


Fig. 1-1

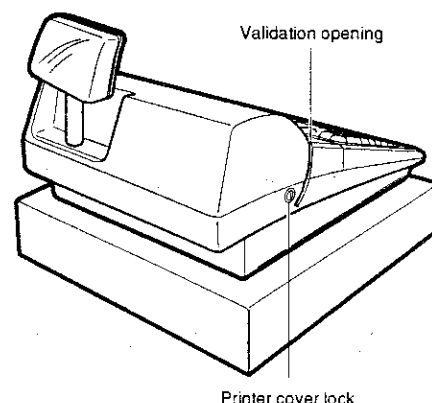


Fig. 1-2

### 2) Rating

Power source	AC local voltage ( $\pm 10\%$ ) 50Hz/60Hz
Power consumption	Standby: 20 W Maximum: 60 W (Germany), 61 W (U.K.), with options installed.
Operating temperature	0°C~40°C (32°F~104°F)
Operating humidity	10%~90% (RH)
Physical dimensions, including the drawer	445(W) × 485(D) × 325(H)mm
Weight	18 kg

## 2. Keyboard

### 1) Standard keyboard layout

↑ RECEIPT			↑ JOURNAL														
			13	14	15	16	17	18	19	20	21	22	23	24			
			1	2	3	4	5	6	7	8	9	10	11	12			
SLIT	VP	RCPT	AMT		PLU/SUB		EAN		REPEAT	PRICE CHANGE		INQ	DELETE	NON-DELETE			
NS	CUSTOMER		⊗	•	CL			5	10	15	20			AUTO	CHARGE		
#	VAT	VAT SHIFT	7	8	9			4	9	14	19			CR1	CR2		
RA	%1	%2	4	5	6			3	8	13	18			EX1	CH		
PO	⊖1	⊖2	1	2	3			2	7	12	17			ST			
RF	∞		0		00			1	6	11	16			TL			

Fig. 2-1

## 2) Key top name

### ① Standard key top

Keytop	Description
0 to 9, 00	Numeric keys
.	Decimal point key
C L	Clear key
⊗	Multiplication key
DEPT. 1~20	Department 1~20 keys
↑ RECEIPT	Receipt paper feed key
↑ JOURNAL	Journal paper feed key
RCPT	Receipt print key
VP	Validation print key
#	Non-add code entry key
AUTO	Automatically entry key
NS	No sale key
VAT	Value added tax key
SLIP	Slip print key
GC COPY	Guest check copy key
⊖ 1	Discount 1 key
⊖ 2	Discount 2 key
% 1	% 1 key
% 2	% 2 key
PO	Paid out key
RA	Received on account key
RF	Refund key
Ä	Void key
AMT	Amount key
PLU/SUB	PLU/Subdept. code entry key
EX1	Currency Exchange 1 keys
PLU 1~24	Direct/Sub department 1~24 keys
ST	Tax included subtotal key
CR 1	Credit 1 key
CR 2	Credit 2 key
CH	Check key
TL	Total key
VAT SHIFT	VAT Shift key
CUSTOMER	Customer code entry key
EAN	EAN code entry key
REPEAT	Repeat key
INQ	EAN inquiry key
PRICE CHANGE	Price change key
DELETE	Delete key
NON DELETE	Non-delete key
CHARGE	Charge key

### ② Option key top

Keytop	Description
DEPT. 21~99	Department 21~99 keys
PLU 24~126	Direct/Sab department 24~126 keys
⊖ 3, 4	Discount 3 and 4 keys
% 3, 4	%3 and 4 keys
CR3~8	Credit 3~8 keys
CA 2	Cash 2 key
EX 2~9	Currency Exchang 2~9 keys
AUTO 2 ~10	Automatically entry key 2~10
1/2	1/2 key
CH2 ~ CH4	Check2 ~ 4 keys
CLK1 ~ CLK10	Push button clerk1 ~ 10 keys
2nd PRICE	Second price entry key
000	000 key
RA2	Received account 2 key
PO2	Paid out 2 key
DEPT#	Department number entry key
CHK PR	Check print key
SCALE	Scale key
DIFF ST	Differ subtotal key

## 3. Mode switch

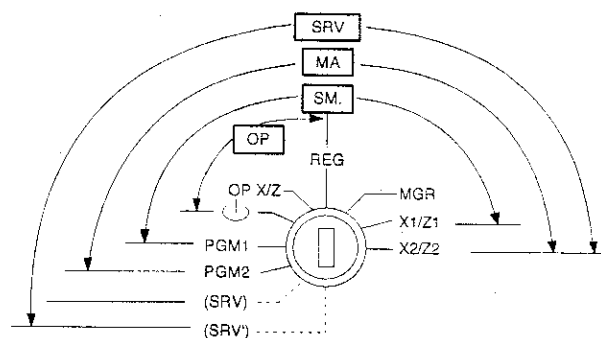


Fig. 3-1

- \* The key can be removed in the REG or OFF position.
- \* In the SRV' mode, key inputs are prohibited and no display is made.
- \* With the key in the off position power is still supplied to the main PWB.

#### [Functions]

- Function for each key position
- SRV': System reset
- SRV: Service mode (Service programming)
- PGM2: Allows programming of an item that is not changed frequently, in addition to the PGM1 mode programming.

- PGM1: Allows programming of items frequently changed (e.g. department, PLU pricing, and discount rate setting).
- OP/XZ: Allows X or Z operation by servers or cashiers.
- REG: Allows registrations.
- MGR: Allows the operations, by authorized person such as a manager (e.g. correction after transaction finished or cancellation of entry limits), which are not permitted to ordinary cashiers.
- X1/Z1: Allows reading and resetting of a day's sales total.
- X2/Z2: Allows reading or resetting sales totals in a specified period.
- $\odot$ : Switching off the display to prevent key board entries.  
(The setting does not turn off the AC power.)

## 4. Display

### 1) Layout

#### ① Operator display

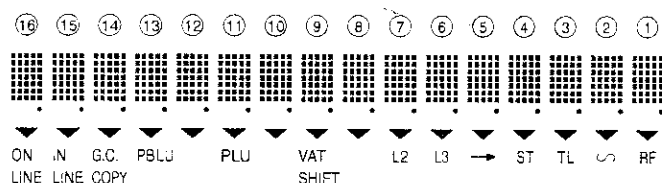


Fig. 4-1

	Dot display
No. of positions	16
Color of display	Green
Character size	8.15 (H) × 5.75 (W) mm.
Font	Dot matrix (5×7)

#### ② Customer display

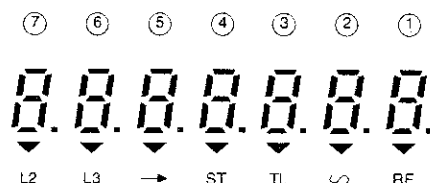


Fig. 4-2

No. of positions	7
Color of display	Green
Character size	13(H) × 6(W) mm
Font	7 segments

### Lamps

Display contents	Description
ON LINE	The lamp lights up when the machine is connected to the online transmission line; and it goes off when the machine is disconnected from the line. The lamp blinks during data transmission.
IN LINE	The lamp lights up during inline communications.
G. C. COPY	The lamp is on while the machine is in the GUEST CHECK COPY mode.
GLU	The lamp lights up when a NC (New check) or PBLU key depressed, and it goes off when a transaction operation is finalized.
PLU	The lamp lights up when a PLU entry is made.
VAT SHIFT	The lamp lights up when the VAT SHIFT key is pressed.
2nd PRICE	The lamp lights up when the 2nd PRICE key is pressed.
L2	The lamp lights up when the PLU level is 2.
L3	The lamp lights up when the PLU level is 3.
→	The lamp lights up when the change due is displayed after an amount tendered entry.
ST	The lamp lights up when a subtotal is displayed.
TL	The lamp lights up when a transaction is finalized with CASH, CHECK, CREDIT, or CHARGE key, however, the lamp does not light up when a transaction is finalized with an amount tendered entry.
VOID	The lamp lights up when a void key entry is made.
RF	The lamp lights up when a RF key entry is made.

## 5. Printer (M-820)

### 1) Specifications

- Part number: M-820
- No. of stations: 2
- Printing system: Mechanical serial dot
- Direction of printing: Bidirectional
- Printing capacity: Receipt – 21 characters  
Journal – 21 characters  
Validation – 47 characters (one line only)
- Character size: 2.7 (H) × 1.5 (W) mm  
Print pitch:  
Column distance 1.83 mm  
Row distance 4.3 mm
- Total number of dots: (95 dots per line) × 2 (receipt and journal)  
Validation Max 213 dot
- Font: 7 × 7 dots  
Space between characters – 1 dot
- Distance between dots: 0.4 mm (H) × 0.407 mm (W)
- Journal near end sensor: Service route option
- Auto cutter: Set up (Full and partial cat.)
- Print speed: Approx. 2.5 lines/sec. (Approx. 26.4V)
- Paper feed speed: Receipt – Approx. 28.2 lines/sec.  
Journal – Approx. 11.2 lines/sec.
- Reliability: MCBF – 2 million lines (excluding the print head)  
Head life – 40 million characters (in the case of printing average 2 dots per character per wire)
- Validation form sensor: Not setup

### 2) Printing area

Receipt/journal

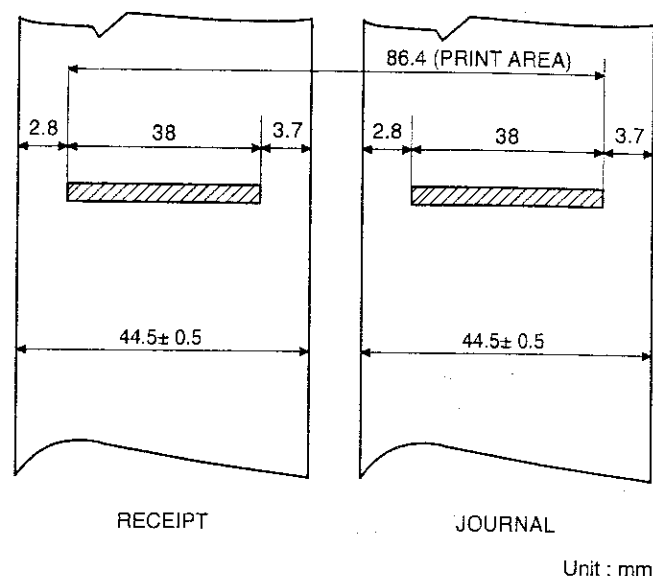


Fig. 5-1

Validation form

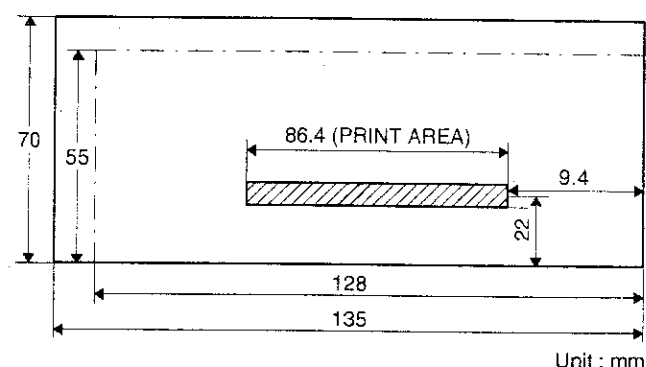


Fig. 5-2

### 3) Paper

- Paper roll dimensions: 44.5±0.5mm in width, 80mm in diameter
- Paper quality: Journal  
Bond paper (paper thickness: 0.06 to 0.09mm, paper weight: 52.3 to 64g/m<sup>2</sup>)  
Validation form  
Thickness: 0.07 to 0.14mm  
Size: 135mm or more (W) × 70mm or more (H)

### 4) Inking

- Ink supply system: Ink ribbon
- Form: Cartridge
- Specification: Material – Nylon
- Ribbon life: 6 million characters
- Print color: Purple (single color)

### 5) Logo stamp

- Material: Porous rubber
- Stamp color: Purple (single color)
- Max. stamp size: 30(W) × 20(H) mm
- Ink refill: Allowed (UINK-1001CCZZ: 5CC)

## CHAPTER 2. OPTIONS

### 1. System configuration

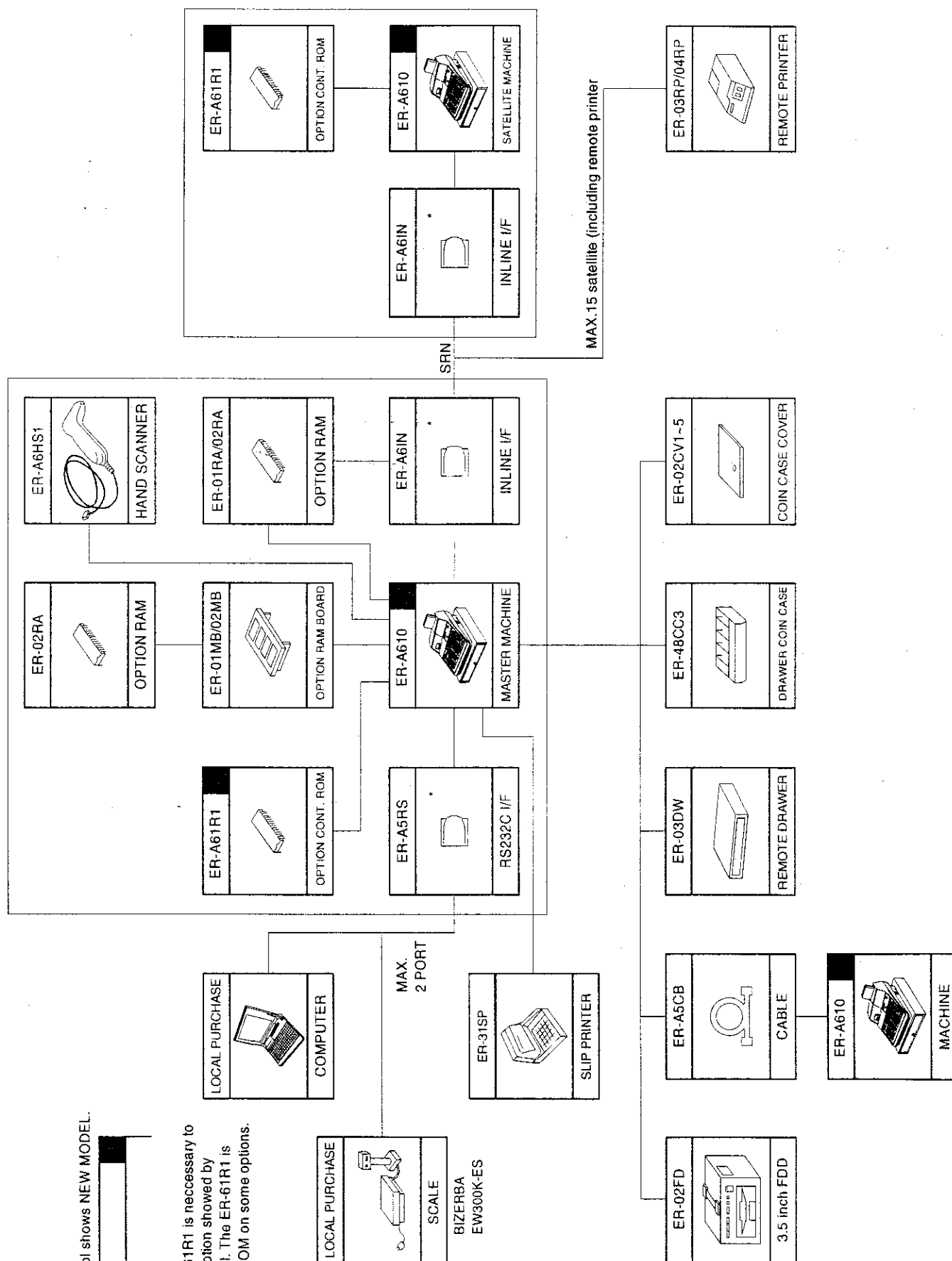


Fig. 1-1

## 2. Options

NO	NAME	MODEL	DESCRIPTION
1	REMOTE PRINTER	ER-03RP	Via SRN I/F (ER-A6IN)
		ER-04RP	
2	HAND SCANNER	ER-A6HS1	
3	REMOTE DRAWER	ER-03DW	4B/8C, MAX. 3 units
4	COIN CASE	ER-48CC3	4B/8C
5	COIN CASE COVER	ER-02CV1-5	For ER-48CC3
6	EXPANSION RAM CHIP	ER-01RA	32K bytes RAM chip
		ER-02RA	128K bytes RAM chip
7	EXPANSION MEMORY BOARD	ER-01MB	128K bytes memory board with 3 IC sockets (For ER-02RA)
		ER-02MB	1M bytes memory board
8	IN-LINE SYSTEM	ER-A6IN	SRN inline I/F
9	ON-LINE SYSTEM	ER-A5RS	2ports RS-232 I/F
10	CONTROL ROM	ER-A61R1	Control for ER-A6IN, ER-A5RS
11	PRESETS LOADER	ER-02FD	FD unit
12	CONNECTION CABLE	ER-A5CB	Loader cable
13	SLIP PRINTER	ER-31SP	
14	KEY TOP KIT	ER-11KT6	1 × 1 key top
		ER-12KT6	1 × 2 key top
		ER-22KT6	2 × 2 key top
		ER-11DK6	1 × 1 dummy key
		ER-51DK6	1 × 5 dummy key

## 3. Service options

NO.	NAME	PARTS CODE	PRICE RANK	DESCRIPTION
1	SERVICE KEY	LKGIM7113RCZZ	AK	For the mode switch
2	DRIP-PROOF SWITCH COVER	GCOVB7047RCZZ	BA	
3	MODE KEY GRIP COVER	LKGIM7126RCZZ	AL	OP key only
4	DRIP-PROOF KEYBOARD COVER	GCOVB7043RCZZ	BC	
5	JOURNAL NEAR END SENSOR	DKIT-8643RCZZ	BG	
6	DRAWER FIXING KIT	DKIT-8633RCZZ	BE	
7	PROGRAMMING CHARACTER KEYBOARD COVER	GCOVB7043RCSC	BG	

## 4. Service tools

NO.	NAME	PARTS CODE	PRICE RANK
1	EXPANSION PWB	CKOG-6708RCZZ	BU
2	SIO LOOP BACK CONECTOR	UKOG-6704RCZZ	AV
3	RS-232 LOOP BACK CONNECTOR	UKOG-6705RCZZ	BU

## 5. Supplies

NO.	NAME	PARTS CODE	PRICE RANK	DESCRIPTION
1	ROLL PAPER	DPAPR1006CSZZ	AR	5rolls/pack
2	INK RIBBON	PRBN-6640RCZZ	AX	
3	INK FOR STAMP	UINK-1001CCZZ	AK	5cc

## 6. Options

For installation of the options, refer to the Installation Manual which is separately issued from this manual.

## 7. How to use service tools

### 7-1. SIO loop back connector: UKOG-6704RCZZ

- External view

Signal	Pin	
GND	1	N.C
ER	2	
DR	3	
RXD	4	
TXD	5	
CD	6	
RR	7	
CS	8	
RS	9	



Fig. 7-1

- Purpose: Used for "SIO Test 1 (SIO loop back test)."
- Installation view:

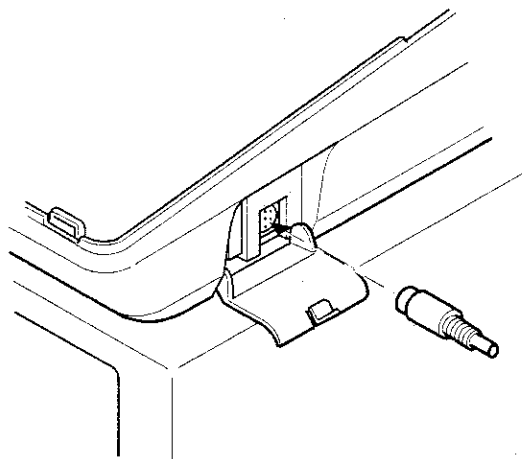


Fig. 7-2

- How to use: Connect the UKOG-6704RCZZ to the body and perform the following key operations:  
SRV mode: 117 → TL

### 7-2. Expansion PWB: CKOG-6708RCZZ

- External view

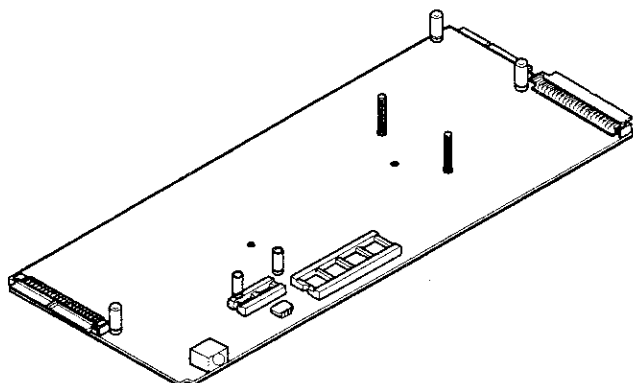


Fig. 7-3

Purpose 1: Used for servicing and repairing of options (such as the ER-A61N and the ER-A5RS) which are connected with the main body option connector.

[Procedure 1]

Use an insulator base as that in Fig. 7-4 (shaded section) and perform servicing.

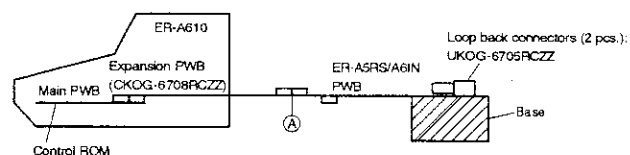


Fig. 7-4

To check the option I/F PWB from the solder side, connect the I/F PWB to OPTCN2. To check from the parts side, connect to OPTCN3.

(Note) The option I/F PWB should be held horizontally so that no excessive stress is applied to connecting section (A) in Fig. 7-4.

[Procedure 2]

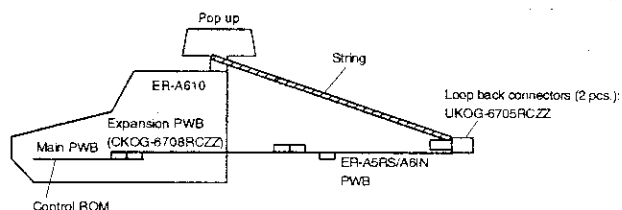


Fig. 7-5

As shown in Fig. 7-5, put a string between the pop up and the option PWB angle and adjust the length of the string so that the CKOG-6708RCZZ and the option PWB. Then perform servicing.

Purpose 2: The CKOG-6708RCZZ is equipped with the loop back connector for checking the ER-A5CB (SIO cable) cable operations.

Example of use

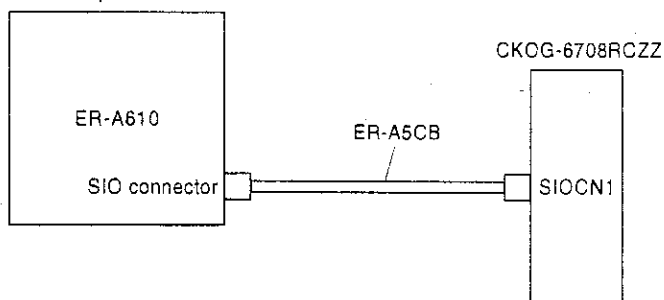


Fig. 7-6

#### Checking procedure

- 1) Connect the ER-A5CB between an ECR body and the CKOG-6708RCZZ SIOCNI. (The SIO functions of the ECR must be normal.)
- 2) Perform test function "117 (SIO loop back test)" and judge it normal or abnormal.

## CHAPTER 3. SRV. RESET AND MASTER RESET

### 1. SRV. reset (Program Loop Reset)

Used to return the machine back to its operational state after a lock-up has occurred.

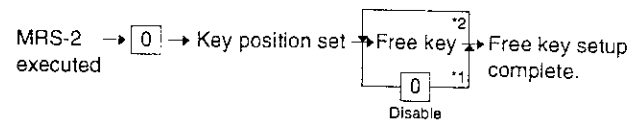
#### Procedure

- Method 1
  - 1) Turn off the AC switch.
  - 2) Set the mode switch to (SRV') position.
  - 3) Turn on the AC switch.
  - 4) Turn to (SRV) position from (SRV') position.
- Method 2
  - 1) Set the mode switch to PGM2 position.
  - 2) Turn off the AC switch.
  - 3) While holding down JOURNAL FEED key and RECEIPT FEED key, Turn on the AC switch.

Note: When disassembling and reassembling always power up using method 1 only. Method 2 will not reset the CKDC4.

Note: SRV programming job#926-B must be set to "4" to allow PGM program loop reset.

[key setup procedure]



#### NOTES:

- \*1: When the 0 key is pressed, the key of the key number on display is disabled.
- \*2: Push the key on the position to be assigned. With this, the key of the key number on display is assigned to that key position.
- \*3: When relocating the keyboard, the PGM 1/2 use standard key layout.

Key number	Key name	Key number	Key name
1	Numeric key "0"	9	Numeric key "8"
2	Numeric key "1"	10	Numeric key "9"
3	Numeric key "2"	11	Numeric key "00"
4	Numeric key "3"	12	Decimal point key
5	Numeric key "4"	13	CL key
6	Numeric key "5"	14	⊗ key
7	Numeric key "6"	15	ST key
8	Numeric key "7"	16	TL key

### 2. Master reset (All memory clear)

There are two possible methods to perform a master reset.

- MRS-1
 

Used to clear all memory contents and return machine back to its initial settings. return keyboard back to default. for default keyboard layout.

#### Procedure

- 1) Turn off the AC switch.
- 2) Set the MODE switch to the (SRV') position.
- 3) Turn on the AC switch.
- 4) While holding down JOURNAL FEED key, turn to (SRV) position from (SRV') position.

- MRS-2
 

Used to clear all memory and keyboard contents.  
This reset returns all programming back to defaults. The keyboard must be entered by hand.  
This reset is used if an application needs different keyboard layout other than that supplied by a normal MRS-1.

#### Procedure

- 1) Turn off the AC switch.
- 2) Set the MODE switch to the (SRV') position.
- 3) Turn on the AC switch.
- 4) While holding down JOURNAL FEED key and RECEIPT FEED key, turn to (SRV) position from (SRV') position.
- 5) Key position assignment:
  - \* After the execution of MRS-2, only the RECEIPT FEED and JOURNAL FEED keys can remain effective on key assignment. Any key can be assigned on any key position on the main keyboard.



## CHAPTER 4. HARD WARE DESCRIPTION

### 1. Hard ware block diagram

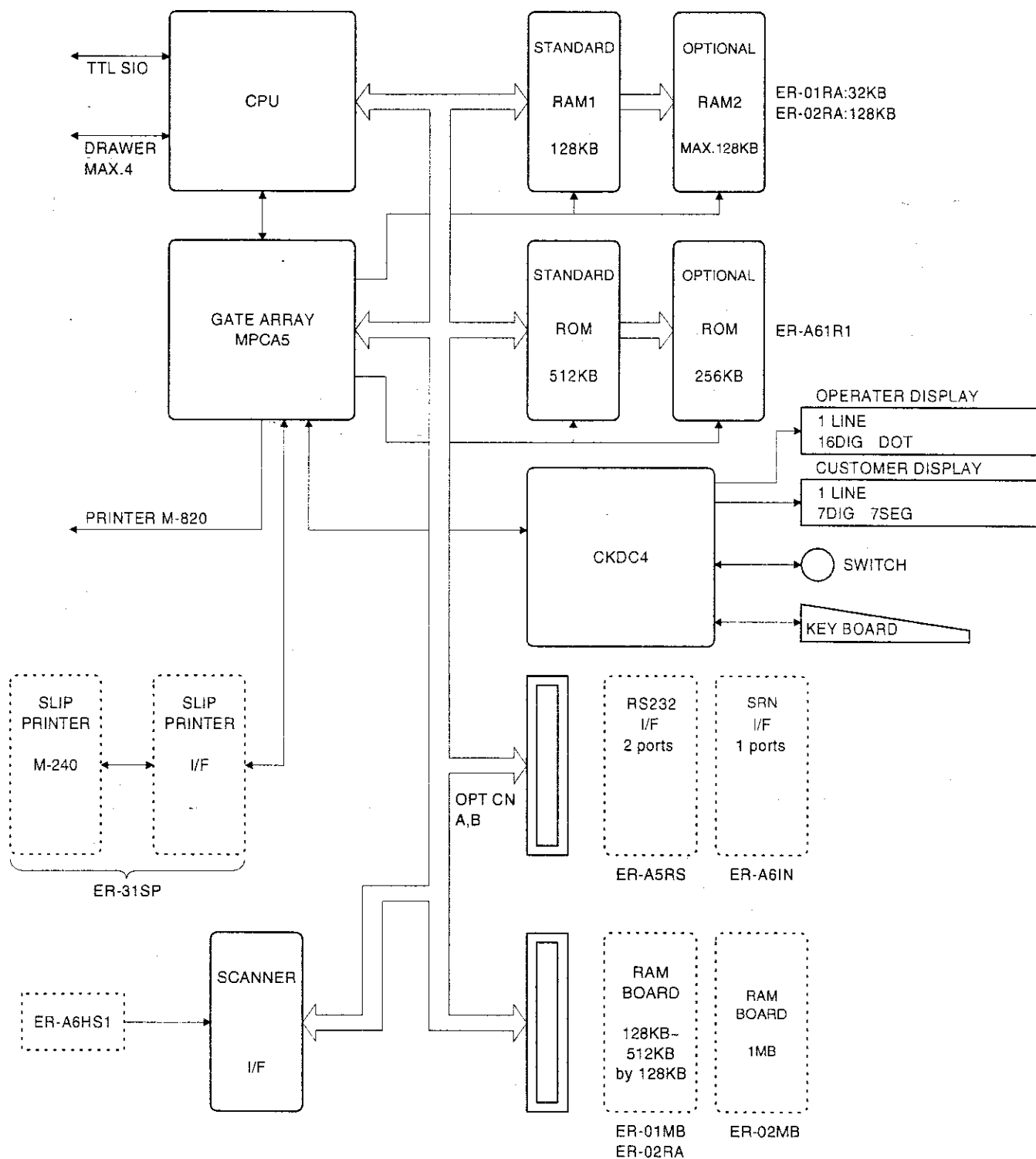
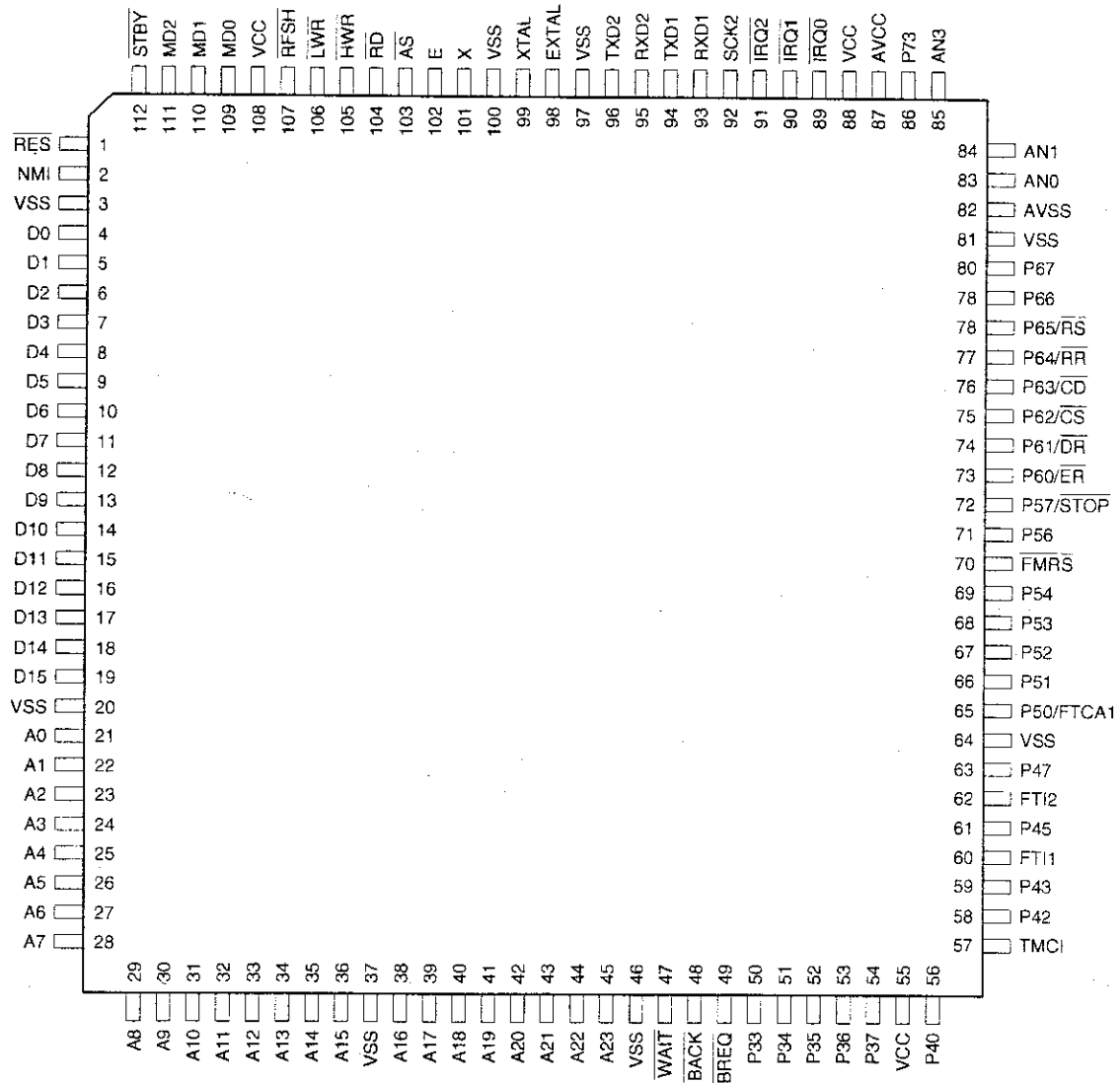


Fig. 1-1

## 2. Description of main LSI's

### 2-1. CPU (HD6415108FX)

#### 1) Pin configuration



HD6415108FX pin configuration

Fig. 2-1

2) Block diagram

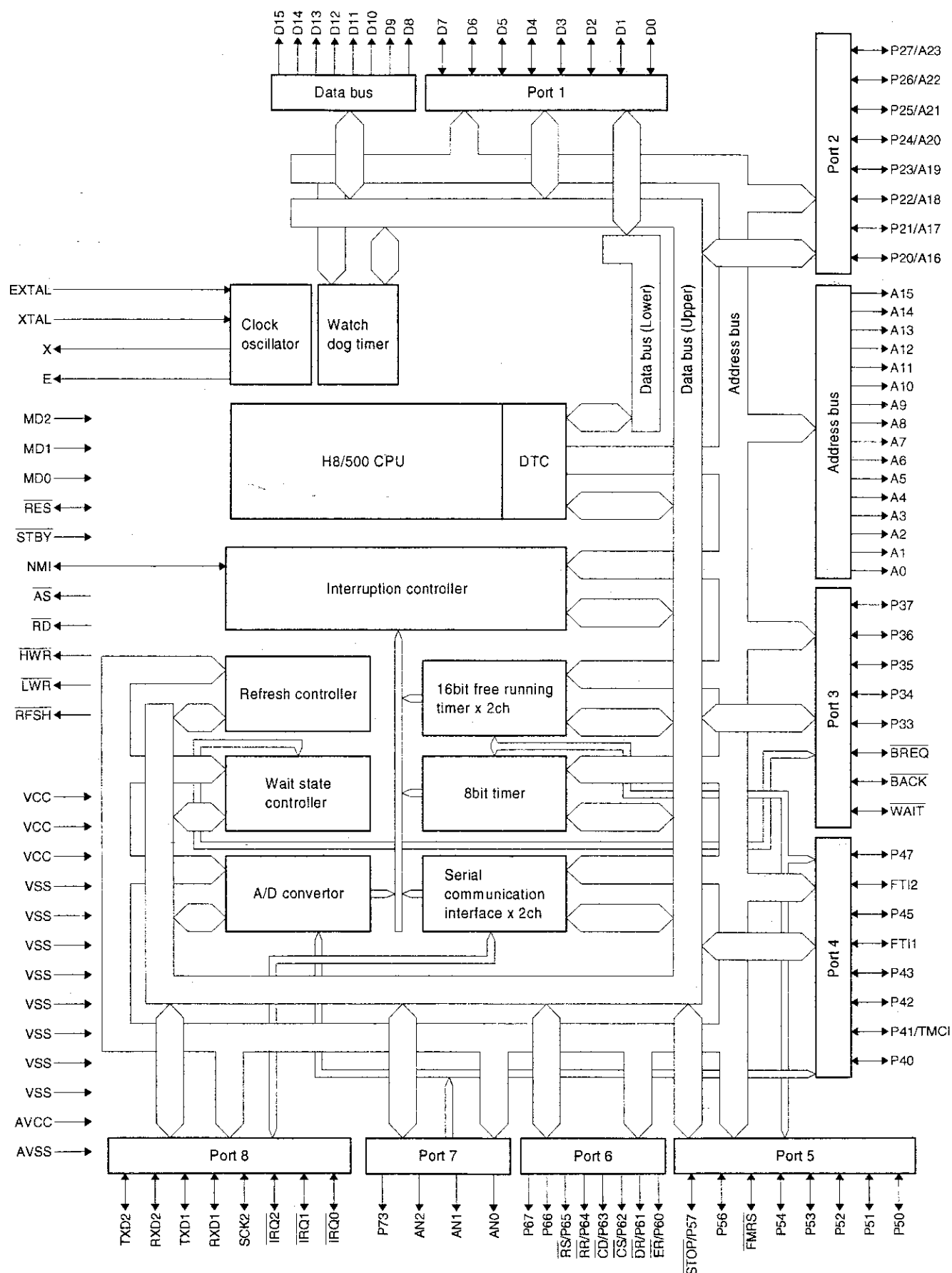


Fig. 2-2

## 3) Pin description

Pin No.	Symbol	Signal name	In/ Out	Function
1	RES	RESET	I/O	Reset input
2	NMi	NMi	In	Non-maskable interrupt input for SSP interrupt input.
3	VSS	NU	In	GND
4	D0	Nu	In	GND
5	D1	Nu	In	GND
6	D2	Nu	In	GND
7	D3	Nu	In	GND
8	D4	Nu	In	GND
9	D5	Nu	In	GND
10	D6	Nu	In	GND
11	D7	Nu	In	GND
12	D8	D0	I/O	Data bus
13	D9	D1	I/O	Data bus
14	D10	D2	I/O	Data bus
15	D11	D3	I/O	Data bus
16	D12	D4	I/O	Data bus
17	D13	D5	I/O	Data bus
18	D14	D6	I/O	Data bus
19	D15	D7	I/O	Data bus
20	VSS	NU	In	GND
21	A0	A0	Out	Address bus
22	A1	A1	Out	Address bus
23	A2	A2	Out	Address bus
24	A3	A3	Out	Address bus
25	A4	A4	Out	Address bus
26	A5	A5	Out	Address bus
27	A6	A6	Out	Address bus
28	A7	A7	Out	Address bus
29	A8	A8	Out	Address bus
30	A9	A9	Out	Address bus
31	A10	A10	Out	Address bus
32	A11	A11	Out	Address bus
33	A12	A12	Out	Address bus
34	A13	A13	Out	Address bus
35	A14	A14	Out	Address bus
36	A15	A15	Out	Address bus
37	VSS	NU	In	GND
38	A16	A16	Out	Address bus
39	A17	A17	Out	Address bus
40	A18	A18	Out	Address bus
41	A19	A19	Out	Address bus
42	A20	A20	Out	Address bus
43	A21	A21	Out	Address bus
44	A22	A22	Out	Address bus
45	A23	A23	Out	Address bus
46	VSS	NU	In	GND
47	WAIT	WAIT	In	Wait signal
48	BACK	BACK	Out	Bus control request acknowledge
49	BREQ	BREQ	In	Bus control request
50	P33	DOPS	In	Drawer open signal
51	P34	DR0	Out	Option drawer open signal
52	P35	DR1	Out	Remote drawer No.1 open signal

Pin No.	Symbol	Signal name	In/ Out	Function
53	P36	DR2	Out	Remote drawer No.2 open signal
54	P37	DR3	Out	Remote drawer No.3 open signal
55	VCC	VCC	In	+5V
56	P40	IFV	In	Slip printer (M-240) interface connect signal
57	TMCi	PTMG	In	Printer (M-820) timing signal
58	P42	TOF	In	Slip printer (M-240) TOF sensor signal
59	P43	BOF	In	Slip printer (M-240) BOF sensor signal
60	FTi1	PRST	In	Printer (M-820) reset signal
61	P45	NEJ	In	Near end sensor journal side
62	FTi2	SHEEN	In	CKDC Interface shift enable signal
63	P47	NER	In	GND
64	VSS	VSS	In	GND
65	P50/FTCA1	TRGI	Out	Dot pulse adjust signal
66	P51	NU	Out	NC
67	P52	NU	Out	NC
68	P53	NU	In	GND
69	P54	NU	Out	NC
70	FMRS	NU	In	NC
71	P56	NU	Out	NC
72	P57/STOP	STOP	Out	System reset output. Normally
73	P60/ER	ERS/ER	Out	SIO control signal (Equipment ready)
74	P61/DR	DRS/DR	In	SIO control signal (Data set ready)
75	P62/CS	CSS/CS	In	SIO control signal (Clear to send)
76	P63/CD	CDS/CD	In	SIO control signal (Carrier detect)
77	P64/RR	RSS/RR	Out	SIO control signal (Ready to receive)
78	P65/RS	RSS/RS	Out	SIO control signal (Request to send)
79	P66	NU	In	GND
80	P67	NU	In	GND
81	VSS	NU	In	GND
82	AVSS	NU	In	GND
83	AN0	VPR	In	Validation sensor journal
84	AN1	VPJ	In	Validation sensor receipt
85	AN3	VPTEST	In	+24V test input
86	P73	VPPS	In	Validation sense signal
87	AVCC	AVCC	In	+5V
88	VCC	VCC	In	+5V
89	IRQ0	IRQ0	In	Interrupt signal 0
90	IRQ1	IRQ1	In	Interrupt signal 1
91	IRQ2	IRQ2	In	Interrupt signal 2
92	SCK2	SCKi	In	CKDC Interface sync shift clock
93	RXD1	RXD	In	SIO control signal (Receive data)
94	TXD1	TXD	Out	SIO control signal (Transmit data)

Pin No.	Symbol	Signal name	In/ Out	Function
95	RXD2	RXD2	In	CKDC Interface shift input data
96	TXD2	TXDi	Out	CKDC Interface shift output data
97	VSS	NU	In	GND
89	EXTAL	EXTAL	In	Crystal oscillator connection
99	XTAL	XTAL	In	Crystal oscillator connection
100	VSS	NU	In	GND
101	X	X	Out	System clock
102	E	NU	Out	Nu
103	AS	AS	Out	Address strobe
104	RD	RD	Out	Read
105	WR	WR	Out	Write
106	LWR	LWR	Out	Nu
107	RFSH	RFSH	Out	Refresh cycle
108	VCC	VCC	In	+5V
109	MD0	MD0	In	+5V (MODE 3)
110	MD1	MD1	In	+5V (MODE 3)
111	MD2	MD2	In	GND
112	STBY	STBY	In	+5V (Nu)

## 2-2. G.A (MPCA5)

## 1) Pin configuration

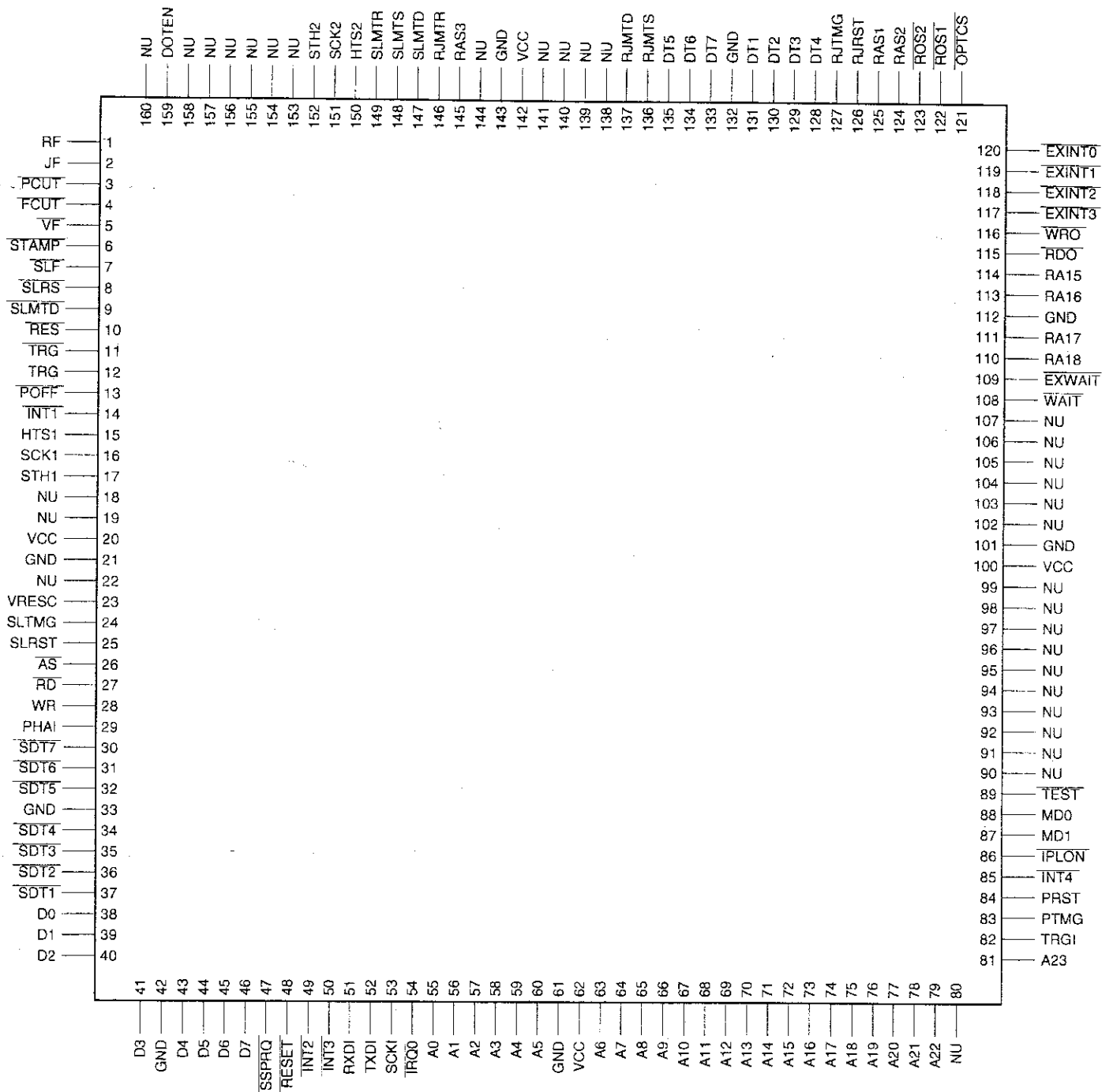
GATE ARRAY (F258016PC)  
MPCA5

Fig. 2-3

## 2) Block diagram

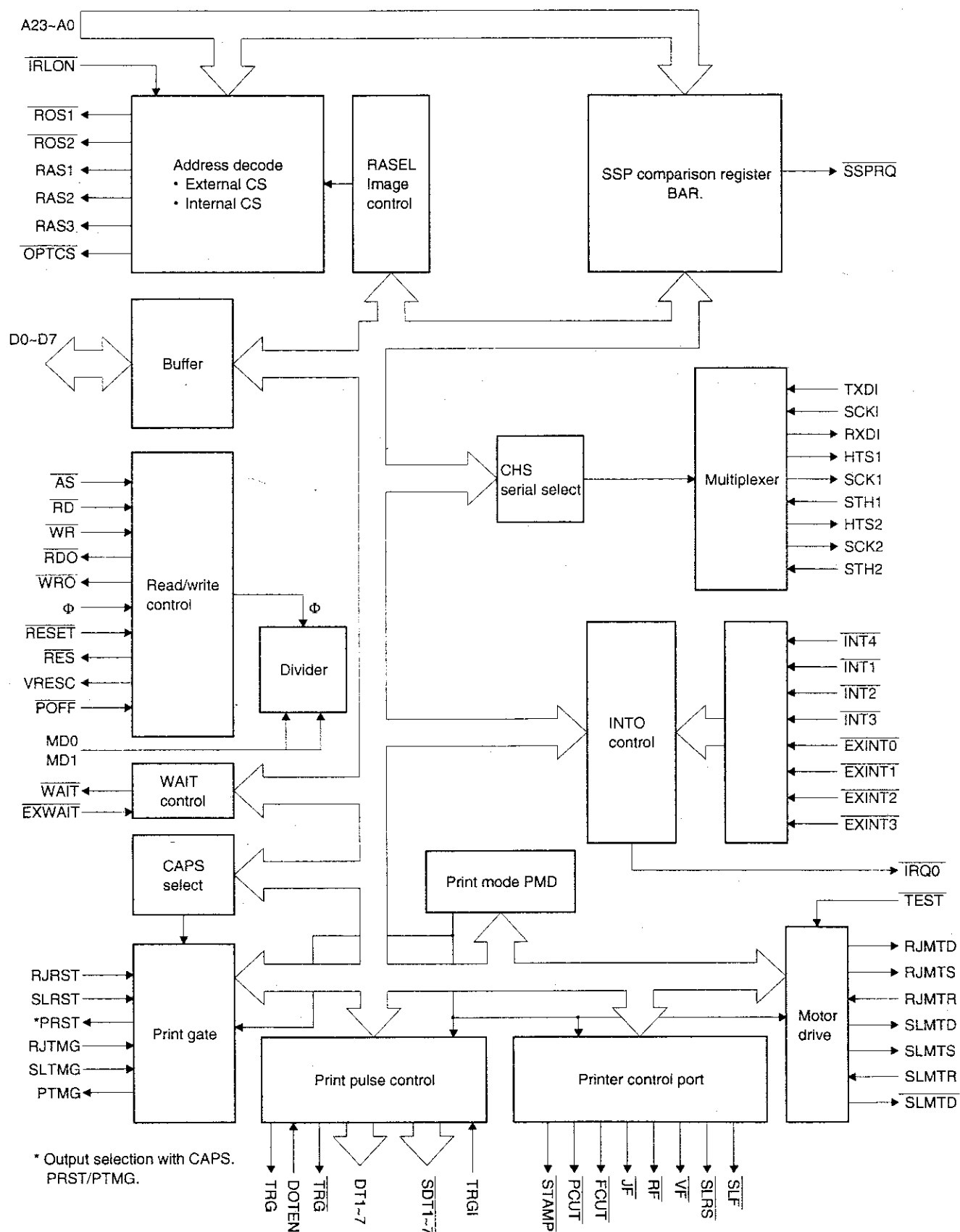


Fig. 2-4

## 3) Pin description

Pin No.	Signal name	In/ Out	Function
1	RF	Out	Receipt side paper feed solenoid
2	JF	Out	Journal side paper feed solenoid
3	PCUT	Out	Printer (M-820) partial cut signal = Not used
4	FCUT	Out	Printer (M-820) auto cut signal = Not used
5	VF	Out	Multi line validation paper feed = Not used
6	STAMP	Out	Printer (M-820) stamp signal
7	SLFS	Out	Slip printer (M-240) paper feed signal
8	SLRS	Out	Slip printer (M-240) release signal
9	SLMTD	Out	Slip printer (M-240) motor drive signal
10	RES	Out	Peripheral output reset
11	TRG	Out	Dot head trigger signal (M-240)
12	TRG	Out	Dot head trigger signal (M-820)
13	POFF	In	Interrupt input
14	INT1	In	Interrupt signal (Key interrupt request)
15	HTS1	Out	8 bit serial port output
16	SCK1	Out	Serial port shift clock output
17	STH1	In	8 bit serial port input
18	—	—	Nu
19	—	—	Nu
20	VCC	—	+5V
21	GND	—	GND
22	—	—	Nu
23	VRESC	Out	Turns active when reset and power down is met
24	SLTMG	In	Slip printer timing signal
25	SLRST	In	Slip printer reset signal
26	AS	In	Address strobe
27	RD	In	Read strobe
28	WR	In	Write strobe
29	$\phi$	In	( $\phi$ ) System clock
30	SDT7	Out	Printhead drive signal (dot7)
31	SDT6	Out	Printhead drive signal (dot6)
32	SDT5	Out	Printhead drive signal (dot5)
33	GND	—	GND
34	SDT4	Out	Printhead drive signal (dot4)
35	SDT3	Out	Printhead drive signal (dot3)
36	SDT2	Out	Printhead drive signal (dot2)
37	SDT1	Out	Printhead drive signal (dot1)
38	D0	I/O	Data bus
39	D1	I/O	Data bus
40	D2	I/O	Data bus
41	D3	I/O	Data bus
42	GND	—	GND
43	D4	I/O	Data bus
44	D5	I/O	Data bus
45	D6	I/O	Data bus
46	D7	I/O	Data bus
47	SPRQ	Out	SSP interrupt request
48	RESET	In	MPCA5 reset
49	INT2	In	Interrupt signal (Nu)
50	INT3	In	Interrupt signal (Nu)
51	RXDI	Out	8 bit serial port output to CPU
52	TXDI	In	8 bit serial port input from CPU

Pin No.	Signal name	In/ Out	Function
53	SCKI	In	Serial port shift clock input from CPU.
54	IRQ0	Out	Interrupt request to CPU
55	A0	In	Address bus
56	A1	In	Address bus
57	A2	In	Address bus
58	A3	In	Address bus
59	A4	In	Address bus
60	A5	In	Address bus
61	GND	—	GND
62	VCC	—	+5V
63	A6	In	Address bus
64	A7	In	Address bus
65	A8	In	Address bus
66	A9	In	Address bus
67	A10	In	Address bus
68	A11	In	Address bus
69	A12	In	Address bus
70	A13	In	Address bus
71	A14	In	Address bus
72	A15	In	Address bus
73	A16	In	Address bus
74	A17	In	Address bus
75	A18	In	Address bus
76	A19	In	Address bus
77	A20	In	Address bus
78	A21	In	Address bus
79	A22	In	Address bus
80	—	—	Nu
81	A23	In	Address bus
82	TRGI	In	Dot pulse control/drive signal
83	PTMG	Out	Printer timing signal
84	PRST	Out	Printer reset signal
85	INT4	In	Interrupt signal
86	IPLON	In	Nu
87	MD1	In	Mode select input
88	MD0	In	Mode select input
89	TEST	In	Nu
90	—	—	Nu
91	—	—	Nu
92	—	—	Nu
93	—	—	Nu
94	—	—	Nu
95	—	—	Nu
96	—	—	Nu
97	—	—	Nu
98	—	—	Nu
99	—	—	Nu
100	VCC	—	+5V
101	GND	—	GND
102	—	—	Nu
103	—	—	Nu
104	—	—	Nu
105	—	—	Nu
106	—	—	Nu



Pin No.	Signal name	In/Out	Function
107	—	—	Nu
108	WAIT	Out	Wait request signal
109	EXWAIT	In	External wait control input signal
110	RA18	Out	Nu
111	RA17	Out	Nu
112	GND	—	GND
113	RA16	Out	Nu
114	RA15	Out	Nu
115	RDO	Out	Expansion RD signal
116	WRO	Out	Expansion WR signal
117	EXINT3	In	Expansion interruption signal 3
118	EXINT2	In	Expansion interruption signal 2
119	EXINT1	In	Expansion interruption signal 1
120	EXINT0	In	Expansion interruption signal 0
121	OPTCS	Out	Chip select base signal for expansion option
122	ROS1	Out	ROM 1 chip select signal
123	ROS2	Out	ROM 2 chip select signal
124	RAS2	Out	RAM 2 chip select signal
125	RAS1	Out	RAM 1 chip select signal
126	RJRST	In	M820 reset signal
127	RJTMG	In	M820 timing signal
128	DT4	Out	M820 dot signal
129	DT3	Out	M820 dot signal
130	DT2	Out	M820 dot signal
131	DT1	Out	M820 dot signal
132	GND	—	GND
133	DT7	Out	M820 dot signal
134	DT6	Out	M820 dot signal
135	DT5	Out	M820 dot signal
136	RJMTS	Out	M820 motor brake signal
137	RJMTR	Out	M820 motor drive signal
138	—	—	Nu
139	—	—	Nu
140	—	—	Nu
141	—	—	Nu
142	VCC	—	+5V
143	GND	—	GND
144	—	—	Nu
145	RAS3	Out	Nu
146	RJMTR	In	M820 motor lock detection signal
147	SLMTD	In	Nu
148	SLMTS	In	Nu
149	SLMTR	In	GND
150	HTS2	Out	Nu
151	SCK2	Out	Nu
152	STH2	In	Nu
153	—	—	Nu
154	—	—	Nu
155	—	—	Nu
156	—	—	Nu
157	—	—	Nu
158	—	—	Nu
159	DOTEN	Out	Dot drive enable signal
160	—	—	Nu

## 2-3. CKDC4 (HD404728A20FS)

### 1) General description

The CKDC4 is a 4-bit microcomputer developed for the ER-A670 and provides functions to control the real-time clock, keys, and displays. The basic functions of the CKDC4 are shown below.

**Keys:** The CKDC4 is capable of controlling a maximum of 256 momentary keys. (Sharp 2-key rollover control)  
Simultaneous scanning of key and switch  
(When a key is scanned, the state of a mode and clerk switch is also buffered. The host can scan the state of switch together with the key entry data at the same time the key is scanned.)

**Switches:** Mode switch with 14 positions maximum  
8-bit clerk (cashier) switch  
2-bit feed switch  
1-bit receipt on/off switch  
1-bit option switch  
4-bit general-purpose switch (1-bit is used for keyboard select)

**Displays:** 16-column dot display  
12-column 7-segment display (column digit selectable)  
All column blink controlled for the dot and 7-segment display decimal point and indicators  
Programmable patterns for 7-segment display:  
Four patterns  
Internal driver for 7-segment display

**Buzzer:** Single tone control

**Clock:** Year, month, day of month, day of week, hour, minute

**Alarm:** Hour, minute

**Interrupt request (event control):**  
Detection of key input, switch position change, alarm issue, and counter overflow

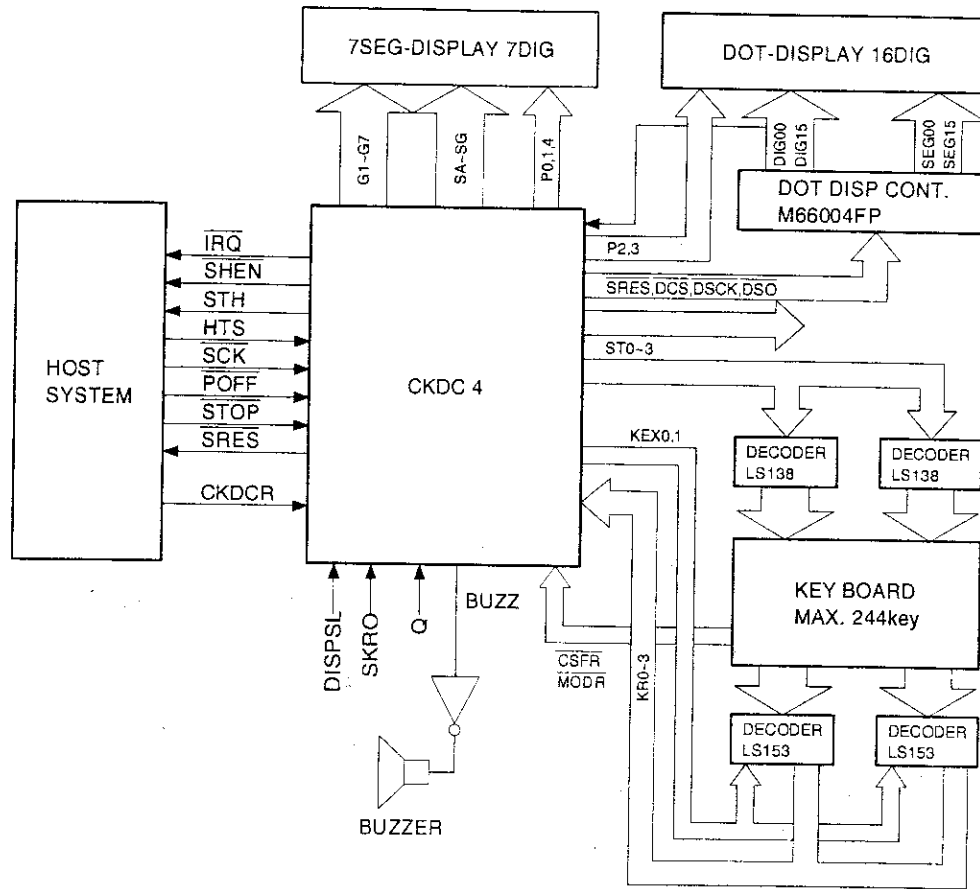


Fig. 2-5

## 2) Pin assignment

Pin No.	Port	I/O	RESET State	Signal name	I/O	Notes	PULL-UP -DOWN
1	R0 <sub>1</sub>	I/O	H-Z	SB	0	DB4 : SEG-B	PULL-DOWN
2	R0 <sub>2</sub>	I/O	H-Z	SC	0	DB4 : SEG-C	PULL-DOWN
3	R0 <sub>3</sub>	I/O	H-Z	SD	0	DB4 : SEG-D	PULL-DOWN
4	R1 <sub>0</sub>	I/O	H-Z	SE	0	DB4 : SEG-E	PULL-DOWN
5	R1 <sub>1</sub>	I/O	H-Z	SF	0	DB4 : SEG-F	PULL-DOWN
6	R1 <sub>2</sub>	I/O	H-Z	SG	0	DB4 : SEG-G	PULL-DOWN
7	R1 <sub>3</sub>	I/O	H-Z	AP	0	DB7 : 7SEG COM	PULL-DOWN
8	R2 <sub>0</sub>	I/O	H-Z	DDP	0	DB2 : DOT DP	PULL-DOWN
9	R2 <sub>1</sub>	I/O	H-Z	DID	0	DB3 : DOT COM	PULL-DOWN
10	R2 <sub>2</sub>	I/O	H-Z	DP	0	DB5 : 7SEG DP	PULL-DOWN
11	R2 <sub>3</sub>	I/O	H-Z	ID	0	DB5 : 7SEG ID	PULL-DOWN
12	RA <sub>0</sub>	I	I	MODR	I	MODE RETURN	PULL-UP
13	RA <sub>1</sub>	I	I	CSFR	I	CLEAR, FEED, SWITCH RETURN	PULL-UP
14	R3 <sub>0</sub>	I/O	H-Z	KEX0	0	KEY EXCHANGE0	
15	R3 <sub>1</sub>	I/O	H-Z	KEX1	0	KEY EXCHANGE1	
16	R3 <sub>2</sub>	I/O	H-Z	NU	0	GND	
17	R3 <sub>3</sub>	I/O	H-Z	NU	0	GND	
18	R5 <sub>0</sub>	I/O	I	ST0	0	KEY SCAN ST0	
19	R5 <sub>1</sub>	I/O	I	ST1	0	KEY SCAN ST1	
20	R5 <sub>2</sub>	I/O	I	ST2	0	KEY SCAN ST2	
21	R5 <sub>3</sub>	I/O	I	ST3	0	KEY SCAN ST3	
22	R6 <sub>0</sub> /INT0	I/O	I	POFF	I	P-OFF	
23	R6 <sub>1</sub> /INT1	I/O	I	STOP	I	STOP	PULL-UP
24	R6 <sub>2</sub> /INT2	I/O	I	DDIG	0	DOT DISPLAY DIGIT INPUT	
25	R6 <sub>3</sub> /INT3	I/O	I	DCS	0	DOT DISPLAY CONT./CS	
26	Vcc					Power supply	
27	R4 <sub>0</sub> /SCK	I/O	I	SCK	I	SCK	
28	R4 <sub>1</sub> /SI	I/O	I	HTS	I	HTS	
29	R4 <sub>2</sub> /SO	I/O	I	STH	0	STH	
30	R4 <sub>3</sub> /PWM	I/O	I	SDISP	I	DIST SELECT	
31	R7 <sub>0</sub> /BUZZ	I/O	I	BUZZ	0	BUZZER	
32	R7 <sub>1</sub> /SCK2	I/O	I	DSCK	0	DOT DISP CONT. SCK	
33	R7 <sub>2</sub> /SI2	I/O	I	SRES	0	SYSTEM RESET	PULL-DOWN

Pin No.	Port	I/O	RESET State	Signal name	I/O	Notes	PULL-UP -DOWN
34	R7 <sub>3</sub> /SO2	I/O	0	DS0	0	DOT DISP CONT. SO	
35	R8 <sub>0</sub>	I/O	0	SHEN	0	SHEN	
36	R8 <sub>1</sub>	I/O	0	KR0	0	KEY REQUEST	
37	R9 <sub>0</sub>	I	I	KR0	I	KEY RETURN 0	
38	R9 <sub>1</sub>	I	I	KR1	I	KEY RETURN 1	
39	R9 <sub>2</sub>	I	I	KR2	I	KEY RETURN 2	
40	R9 <sub>3</sub>	I	I	KR3	I	KEY RETURN 3	
41	RESET	I	I	CKDCR	I	CKDC IV RESET	
42	OSC2					4.19 MHz X'tal	
43	OSC1						
44	GND					GND	
45	CL1					32.768 Khz OSC	
46	CL2						
47	TEST	I	I	VCKDC		5V	
48	D0	I/O	H-Z	G1	0	7 SEG DIG 1	PULL-DOWN
49	D1	I/O	H-Z	G2	0	7 SEG DIG 2	PULL-DOWN
50	D2	I/O	H-Z	G3	0	7 SEG DIG 3	PULL-DOWN
51	D3	I/O	H-Z	G4	0	7 SEG DIG 4	PULL-DOWN
52	D4	I/O	H-Z	G5	0	7 SEG DIG 5	PULL-DOWN
53	D5	I/O	H-Z	G6	0	7 SEG DIG 6	PULL-DOWN
54	D6	I/O	H-Z	G7	0	7 SEG DIG 7	PULL-DOWN
55	D7	I/O	H-Z	NU	0		PULL-DOWN
56	D8	I/O	H-Z	NU	0		PULL-DOWN
57	D9	I/O	H-Z	NU	0		PULL-DOWN
58	D10	I/O	H-Z	NU	0		PULL-DOWN
59	D11	I/O	H-Z	NU	0		
60	D12	I/O	H-Z	NU	0		
61	D13	I/O	H-Z	NU	0		
62	D14	I/O	H-Z	NU	0		
63	D15	I/O	H-Z	NU	0		
64	R0 <sub>0</sub>	I/O	H-Z	SA	0	DB4 : SEG-A	PULL-DOWN

NOTE 3: Pull-up/down in the table indicates that the lines concerned require external pull-up/down resistance.

### 3. Clock generator

#### 1) CPU (HD6415108FX)

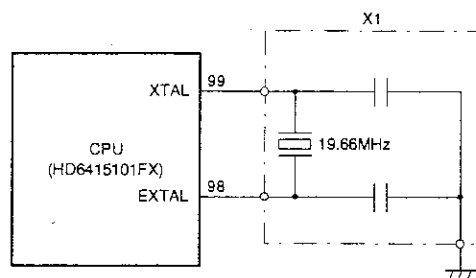


Fig. 3-1

Basic clock is supplied from a 19.66MHz ceramic oscillator. The CPU contains an oscillation circuit from which the basic clock is internally driven. If the CPU was not operating properly, the signal does not appear on this line in most cases.

#### 2) HD404728A20FS CKDC-III oscillation circuit (Display-PWB)

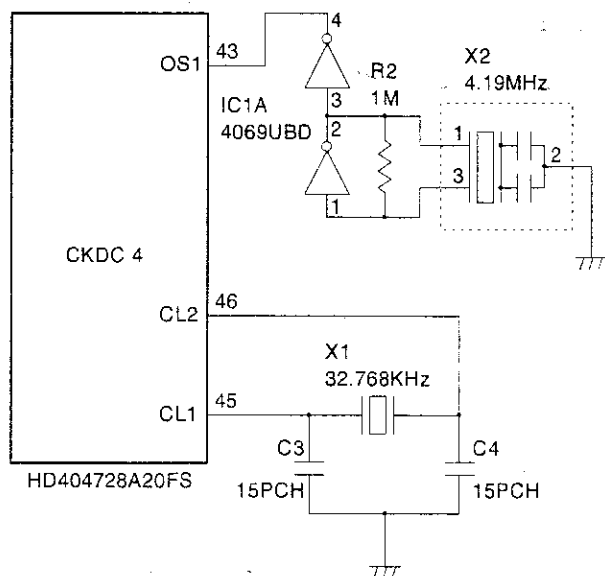


Fig. 3-2

Two oscillators are connected to the CKDC4. The main clock X2 generates 4.19MHz which is used during power on. When power is turned off, the CKDC4 goes into the standby mode and the main clock stops. The sub-clock X1 generates 32.768KHz which is primarily used to update the internal RTC (real time clock). During the standby mode, it keeps oscillating to update the clock and monitoring the power recovery.

### 4. Reset (POFF) circuit

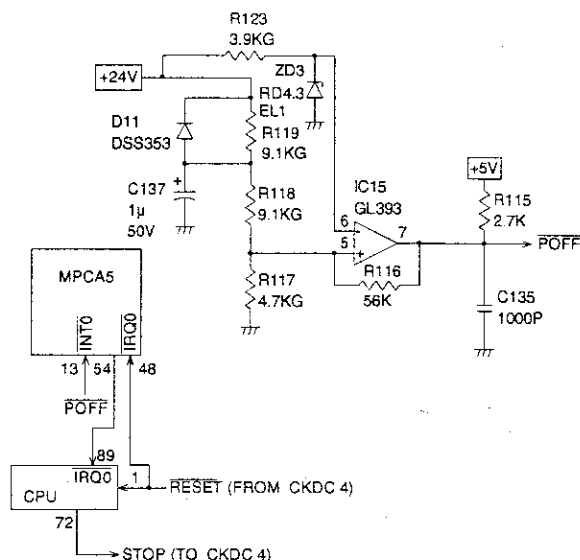


Fig. 4-1

In order to prevent memory loss at a time of power off and power supply failure of the ECR, the power supply condition is monitored at all times. When a power failure is met, the CPU suspends the execution of the current program and immediately executes the power-off program to save the data in the CPU registers in the external S-RAM with the signal STOP forced low to prepare for the power-off situation. The signal STOP is supplied to the CKDC4 as signal RESET to reset the devices.

This circuit monitors +24V supply voltage.

The voltage at the (-) pin of the comparator GL393 is always maintained to 4.3V by means of the zener diode ZD3, while +24V supply voltage is divided through the resistors R119, R118, and R117, and is applied to the (+) pin. When normal +24V is in supply, 5.1V is supplied to the (+) pin, therefore, signal POFF is at a high level. When +24V supply voltage decreases due to a power off or any other reason, the voltage at the (+) pin also decreases. When +24V supply voltage drops, the voltage at the (+) pin drops below +4.3V, which causes POFF to go low, thus predicting the power-off situation.

### 5. Memory control

#### 1) Memory map

##### ① All range memory map

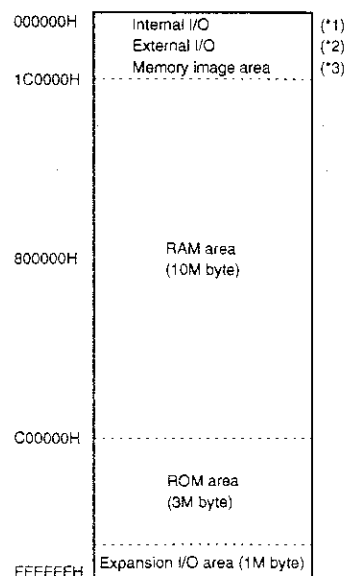


Fig. 5-1

- (X1) "Internal I/O" means the registers in the H8/510.
- (X2) "External I/O" means the base system I/O area to be addressed in page 0.
- (X3) "Memory image area" means the lower 32KB of ROM area which is projected to 000000H ~ 007FFFH for allowing reset start and other vector addressing, or the lower 32KB of ROM area which is projected to 008000H ~ 00FE7FH for allowing 0 page addressing of work RAM area.
- (X4) "Expansion I/O" means expansion I/O device area which is addressed to area other than page 0.

## ② 0 page memory map

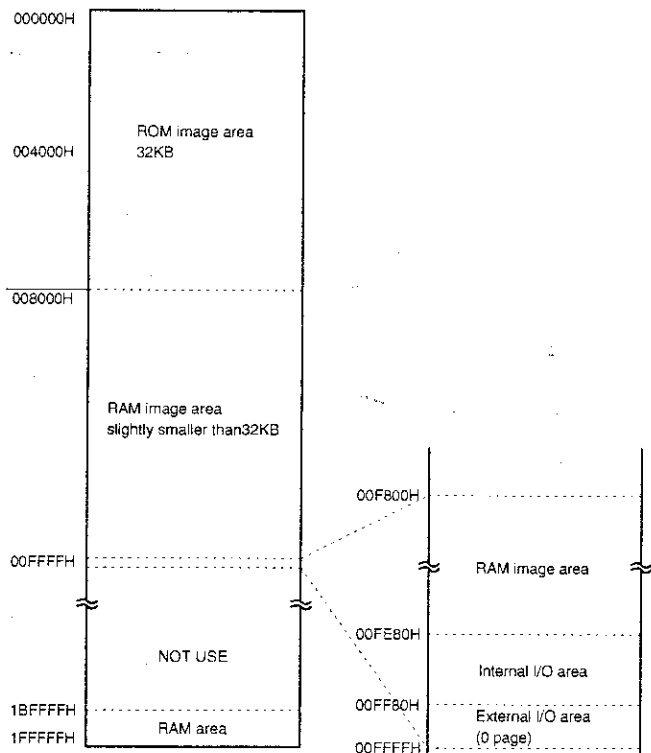


Fig. 5-2

- ROM image area: Image is formed in ROM area address C00000H ~ C07FFFH. This area is identical to IPL ROM area which will be separately developed.
- RAM image area: Image is formed in RAM area address 1D8000H ~ 1DFE7FH. (\*Note)
- \* Note: Image can be formed in lower 32KB of RAS2.

## ③ ROM area memory map

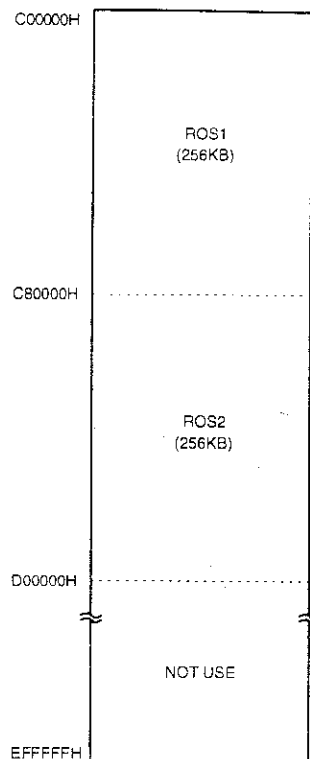


Fig. 5-3

These two decode signals decode 512KB space respectively and can be used with max. 4MB ROM.

\* Note: The lower 32KB of ROS1 signal is formed as OR of image area in 0 page.

## ④ RAM area memory map

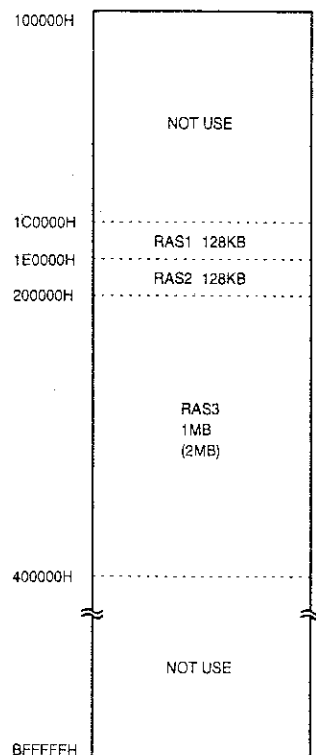


Fig. 5-4

In the three RAM chip select, the following address is decoded.

CS signal	Address
• RAS1	1C0000H~1DFFFFH (008000H~00FE7FH) * Note
• RAS2	1E0000H~1FFFFFFH (008000H~00FE7FH) * Note
• RAS3	200000H~3FFFFFFH

\* Base signal is for 2M.

\* Note: RAS1 signal is formed as OR in the image area of 0 page.  
(Lower 32KB).  
RAS2 signal is formed as OR in the image area of 0 page.  
(lower32KB).

## ⑤ I/O area memory map

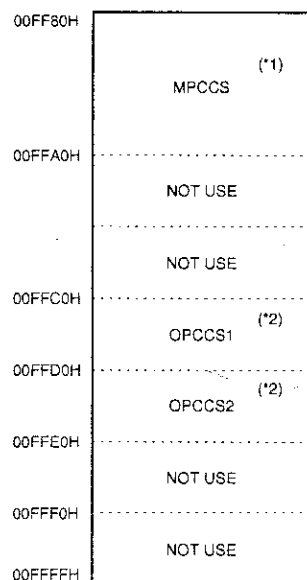


Fig. 5-5

\* Note 1: MPCCS signal is the base signal for MPCAS internal register decoding, and does not exist as an internal signal.

\* Note 2: OPCCS1 and OPCCS2 signals are decoded in the OPC (option peripheral controller) using the base signal OPTCS for option decoding. They do not exist as external signals.

## 2) Block diagram

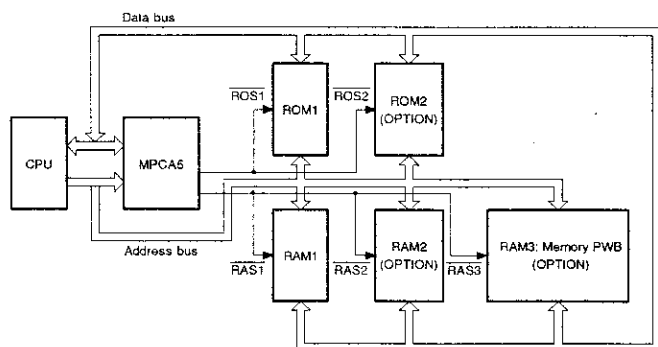


Fig. 5-6

## ① ROM control

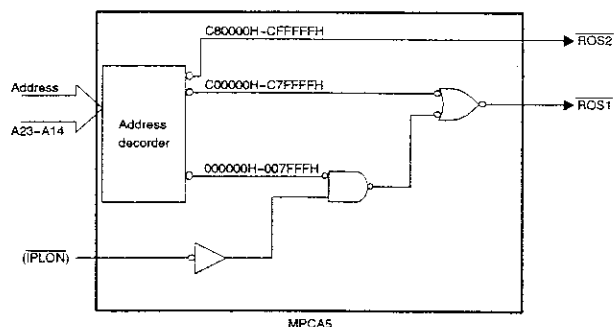


Fig. 5-7

IPLON: IPL board detection signal incorporated in the option slot.  
Note used in the ER-A650. (Not used)

Access is performed with two ROM chip select signals  $\overline{ROS1}$  and  $\overline{ROS2}$ , which decode 512KB address area respectively to access max. 4MB ROM.

## ② RAM control

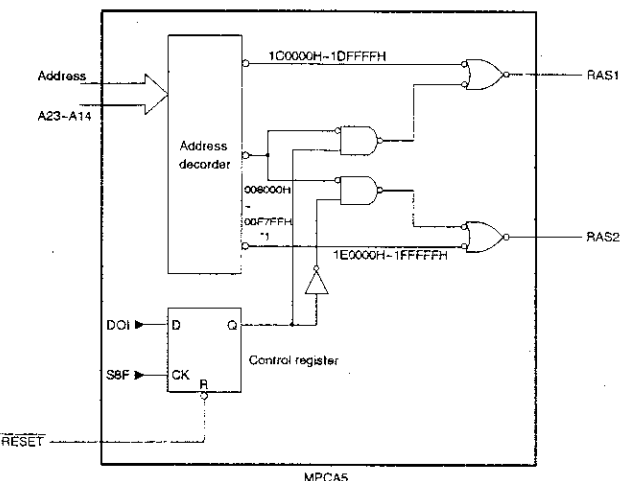


Fig. 5-8

Access is performed with two RAM chip select signals RAS1, RAS2 and RAS3. The control register in MPCAS allows selection of page/image memory area. (RAS1 is selected for initializing.)

\* : For 0 page image area, selection between RAS1 and RAS2 can be made with the control register. The 0 page control register performs initializing at the timing of no stack process immediately after resetting.

## 6. SSP circuit

### 1) Block diagram

This is the circuit employed to do the Special Service Preset (SSP).  
(Block diagram)

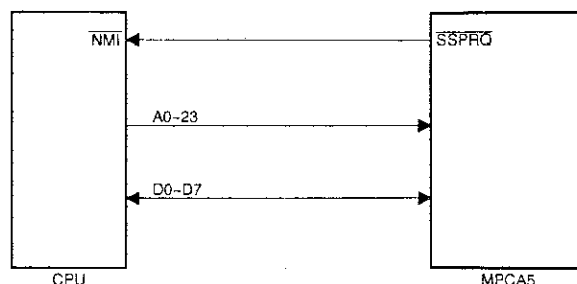


Fig. 6-1

(MPCA5 block diagram)

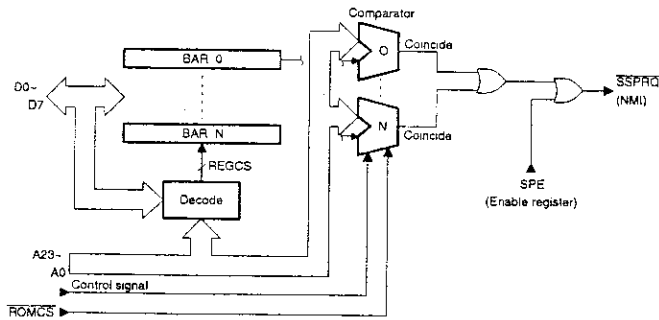


Fig. 6-2

As the address detection system, the break address register comparison system is employed though the mapping system was employed in the conventional monitor RAM. The address register-located in MPCA is always compared with the system address bus to monitor and generate NMI signal at a synchronized timing and to go to NMI exception process.

In the exception process routine service routine, the entry address is checked to go to SSP sub routine.

Entry to the break address register (BAR) is performed through address FFFF00H or later decoded in MPCA5.

## 2) SSP register

The break address register (BAR) is accessed through direct address of FFFF00H~FFFFF7H. Entry number is 32 entry.

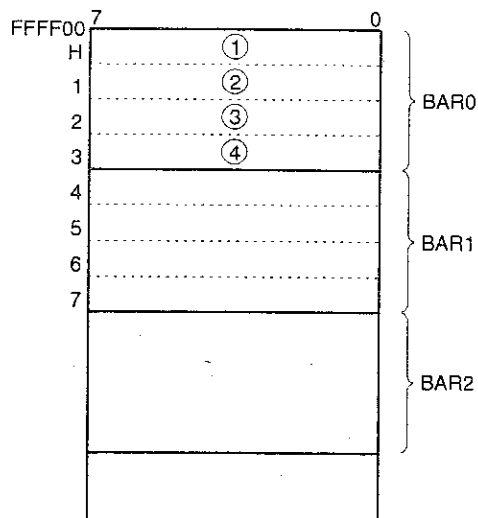


Fig. 6-3

Each BAR is composed of 4 byte address. Bit composition is as follows:

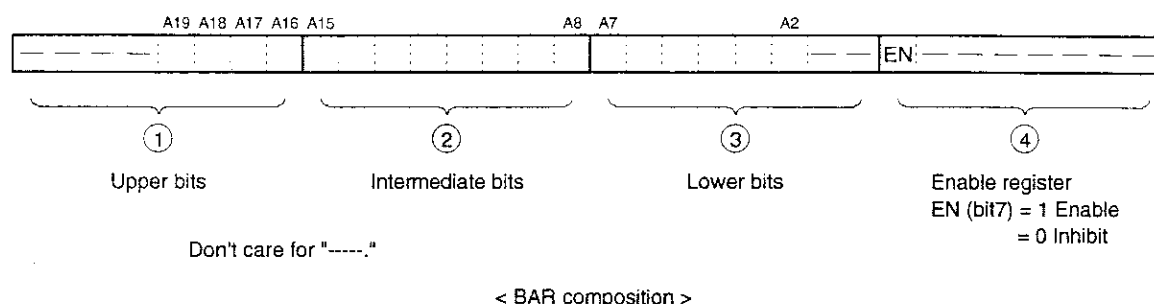


Fig. 6-4

④ is the enable register. The entry registers of the break address are assigned to ①, ②, and ③. Each bit of address corresponds to each bit position, writing to ①, ②, and ③ is performed without shifting. The corresponding area is 1MB space of ROS1 and ROS2.

### 3) SSP register access method

Access to SSP break address register is performed through the temporary register as shown below:

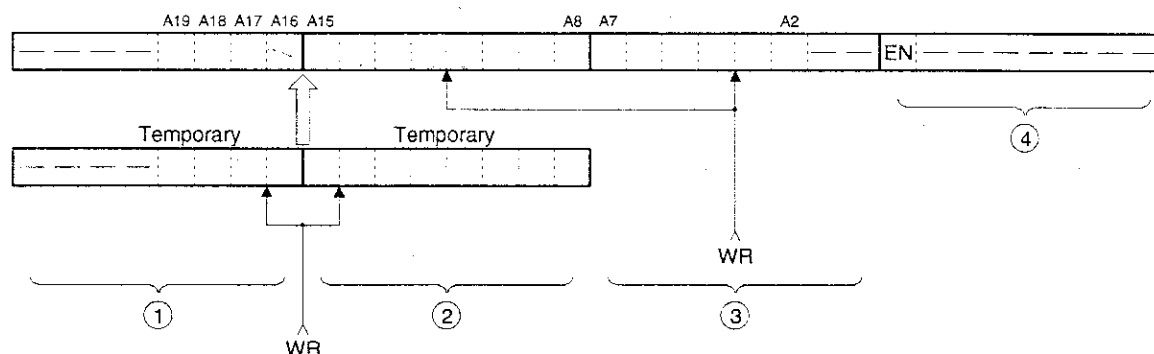


Fig. 6-5

Enable flags can be accessed individually.

Though enable register ④ can be accessed individually, writing to brake address registers ① and ② is performed at the same time as writing to brake address register ③ through the temporary register. Therefore, set ① and ② to temporary, then write into ③ at last. Since the temporary register is commonly used by BAR sets, the following register setting is performed after completion of setting of each break address register.

#### ③ SSP control method

Access to the enable register and the brake address register is only possible when writing to them from the CPU.

bit 7	6	5	4	3	2	1	0	
0	0	0	CMP4	CMP3	CMP2	CMP1	CMP0	(FFFFFFH)

Information on which brake register the SSP brake is detected in is read as binary data by reading address FFFFFFFH (\*1).

Used in an expanded register.

Normally is a reserve bit. When reading, fixed to 0.

If there are 32 break registers, binary expression is made with the above 5 bits, and 0th is "00000<sub>B</sub>" and 31st is "11111<sub>B</sub>."

When detected simultaneously by two or more break registers, one with the smaller BAR number is read as binary data.

The brake signals (NMI) and the above detection data (CMP0~4) are held until the above detection data are read. So read should be made in the NMI sub routine. (Clear by FFFFFFFH read.)

\* 1: FFFFFFFH is not full decoded. (FFFFFF0H~FFFFFFFH). Therefore, unnecessary read access in parentheses should not be performed.

## 7. PRINTER control circuit

### 1) Block diagram

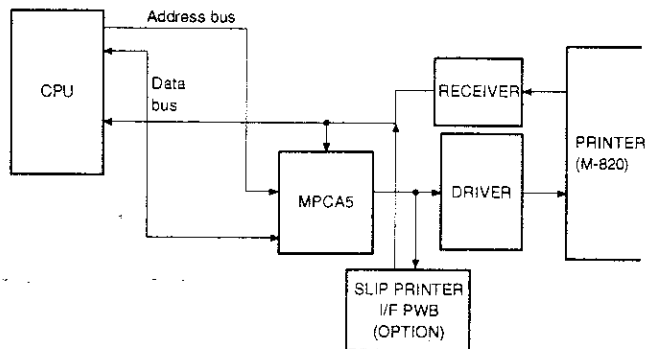


Fig. 7-1

### 2) General description of the printer controller

The M820 is used as the R/J printer of the body and the M240 is used as the slip printer. The printer mechanical timing control is made by the CPU through MPCA5.

### 3) Motor drive circuit

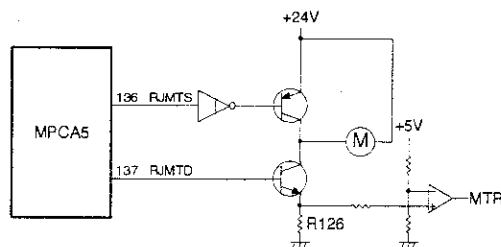


Fig. 7-2

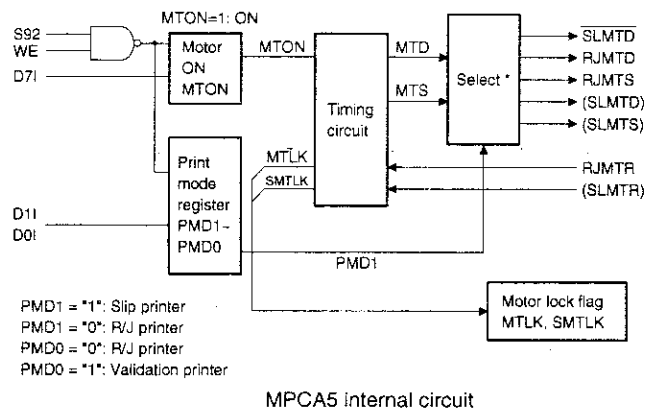


Fig. 7-3

The printer motor ON/OFF control is performed with RJMTD as the drive signal and RJMTS as the brake signal. Motor lock detection is performed as follows:

Check by the hardware: The motor drive current flowing from the MTD transistor is checked across R126. When an overcurrent is detected, the MTR signal becomes HIGH to drive the MTS and MTD signals in the MPCA5 to HIGH impedance to stop conduction of the motor.

When the motor is stopped, the CPU timing pulse width is extended and the CPU judges it as motor lock.

CPU motor lock detection can be read out as internal register MTLK. Lock can be released by writing dummy data into MTLK as well as by conventional hardware reset.

Check by the CPU: When timing pulse from the printer is not generated for more than the specified time, the CPU judges it as motor lock, the MTON is reset (To High) and the motor is stopped.

### 4) Printhead mechanism

With the timing plus (TS) from the motor, current is applied to the dot wire drive coil to print.

- Discussion is given here to explain how a single dot wire is driven.

- When current is applied to a coil, the actuator moves towards the arrowhead (a) as the steel core is magnetized. The actuator makes connection with the wire, and the wire pushed out towards the platen.
- As the wire hits the platen with the ink ribbon and paper in-between, a dot is then printed.
- When current is removed from the coil, the actuator and the wire return to their home positions by means of the actuator spring and wire return spring.

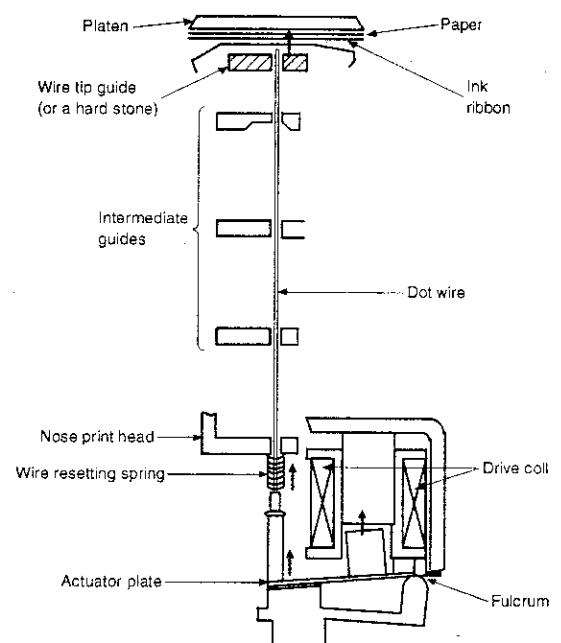


Fig. 7-4

### 5) Dot wire drive control circuit

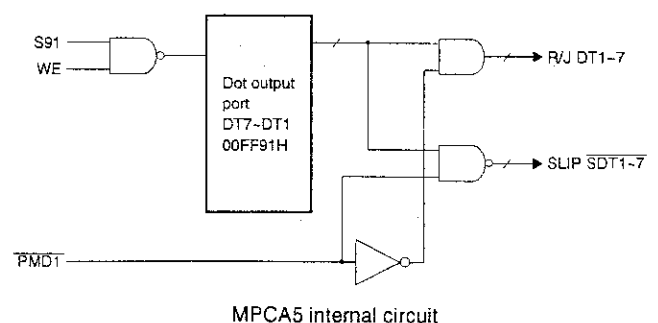
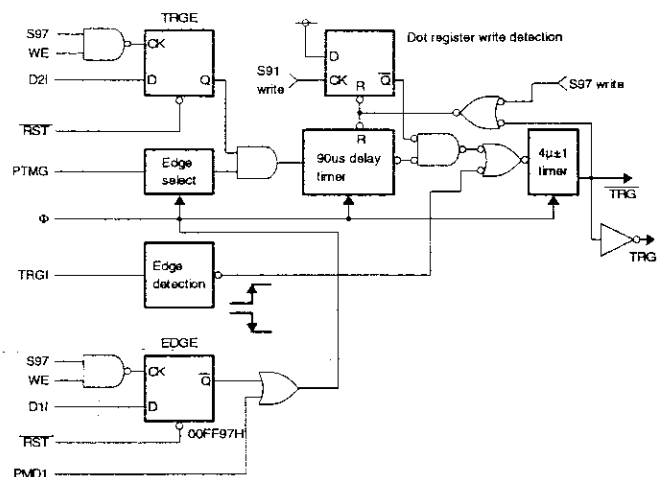


Fig. 7-5

When writing is made into address 00FF91H by the dot register in MPCA5, dot wire drive signals DT1-DT7 are formed. When PMD1 is low, the R/J printer is selected.



## 6) Print trigger generating circuit



MPCA5 internal circuit

Fig. 7-6

- Automatic trigger mode selection register (TRGE)  
TRGE = 1: Automatic trigger generation  
TRGE = 0: Trigger is generated at change edge of OCRA matchoutput.  
(Reset initial value = 0)
- Timing pulse active edge select register (EDGE)  
EDGE = 0: Falling edge  
EDGE = 1: Rising edge  
(Reset initial value = 0)

## 7) Dot solenoid drivers (solenoid 1 - 7)

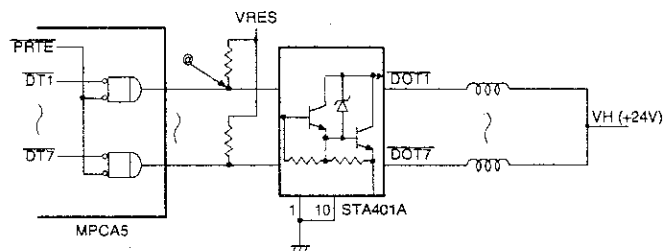
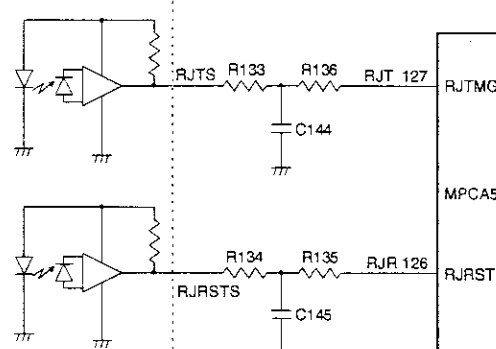
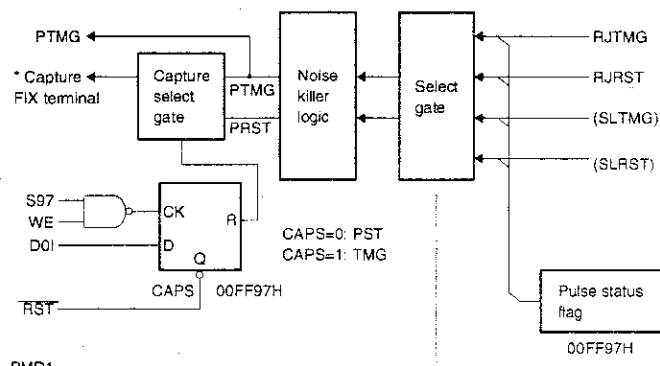


Fig. 7-7

Current to the dot solenoid is controlled in the following manner:

- VRES must be at a high level.
- At the same time  $\overline{DTS1}$  is set low,  $\overline{TRG}$  must be set low.
- $\overline{PATE}$  is now set low. (MPCA5)
- PE must be set high level.
- The signal is turned high at point @, the magnet driver output is set low, and then VH flows through the magnet driver.
- The dot wire now protrudes to hit and print.

## 8) Sensor signal receive circuit

Fig. 7-8  
MPCA5 internal circuit

\*\* PRST/PTMG is in the same phase (non-reversion) of RJTMG/RJRST.

Fig. 7-9

The signal from the photocoupler within the printer is converted into TTL level and conveyed to the MPCA5.

## 9) Paper feed, stamp and cutter circuit

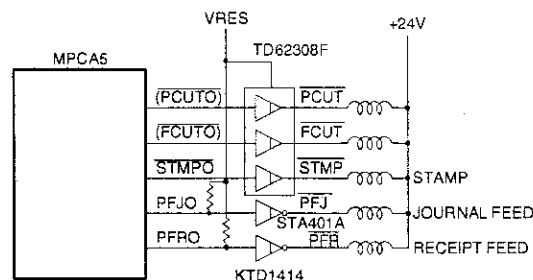


Fig. 7-10

The paper feed/stamp related signals issued from MPCA5 and pulled up by the VRES signal to prevent action when the power supply is not steady.

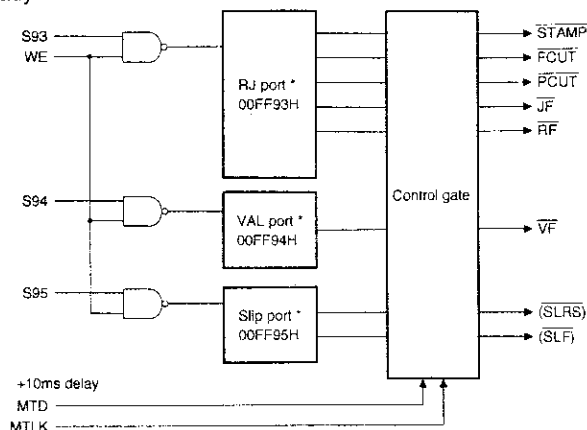


Fig. 7-11

Printer control signals are generated by writing each port address into the register address in PMCA5.

#### CAUTION

If fuse F2 should be blown, the dot head solenoid may be shorted. Be sure to check the head impedance and driver breakdown.

When fuse F2 is blown:

- ① Remove F2, and perform the service resetting. Then set the mode switch to a position other than SRV and SRV' and turn off the power.
- ② Install fuse F2 (1.5A) and turn on the power.  
If the fuse blows with the above operation, driver STA401A may be shorted.
- ③ Turn off the power.
- ④ Disconnect the printer cable from the printer. Measure impedance between the printer body connector pin 21 and the following pins:  
18, 20, 24, 25, 28, 29, 30  
The impedance must be 12.4 ~ 18Ω.  
If impedance is outside the above range, the dot solenoid is bad.  
Replace the dot head unit.

## 8. Drawer drive circuit

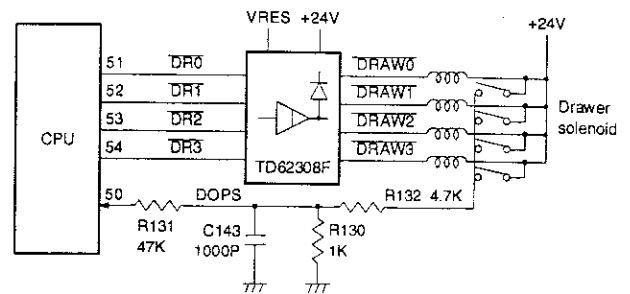


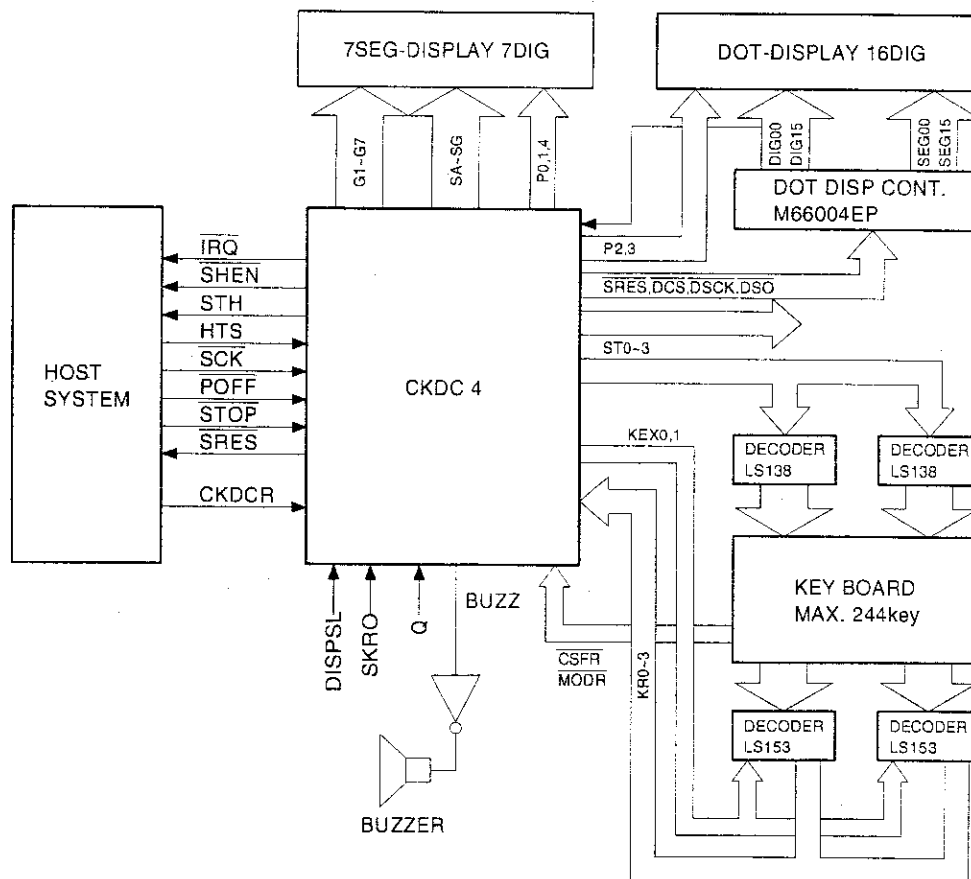
Fig. 8-1

The drawer is directly supported by the CPU. No action starts when the power supply is not steady as the output stage of the driver is pulled VP by VRES signal.

Drawer open and close is sensed with the microswitch provided in the drawer whose signal is level converted with R75 and R77 and directly read by the CPU.

## 9. Key, display, timer, buzzer controls

The keys, switches, displays, timer/calendar, and buzzer are controlled by the CKDC-4 on the display PWB.



Block diagram  
Fig. 9-1

## 1) Power on/off sequence

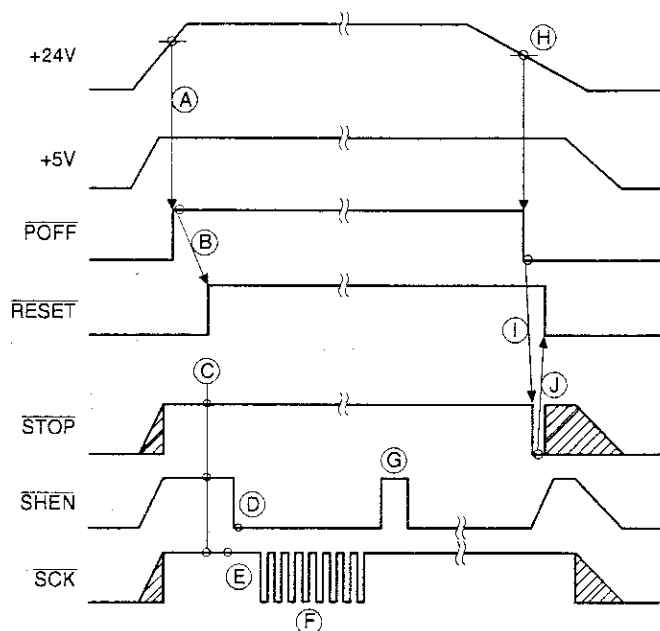


Fig. 9-2

Hatched area indicates logic unstable.

### <At power on>

When +24V power rises, the signal  $\overline{POFF}$  is forced high (A), by which time the +5V supply becomes stable. The CKDC-III monitors the state of  $\overline{POFF}$  while updating the timer/calendar in the low power standby mode, and when the high state of  $\overline{POFF}$  is detected, the system reset signal (RESET) is set high (B), by which time the output lines STOP and SCK of the CPU and MPCA5 have been initialized to high, respectively (C). Thereafter, the CKDC-III sets SHEN active (low) (D) to notify the CPU of the command/data communication ready state. One byte data/command can be transferred with eight SCK pulses (F). When one byte has been transferred with eight SCK pulses, the CKDC-III sets SHEN high to initiate internal processing. After completion of the internal processing, when the next byte transfer becomes ready, the CKDC-III sets SHEN back to a low state to wait for the next byte transfer (G).

Thereafter, the SHEN and SCK timing described above is repeated to carry on the communication.

### <At power off>

When +24V power drops,  $\overline{POFF}$  goes low (H).

A low on the  $\overline{POFF}$  line causes a low level interrupt request which is sent the IRQ0 pin of the CPU. Within a maximum of 10msec of the low level IRQ0 input, the CPU performs software processing necessary for power-off, after which the STOP output is set low (I).

When STOP goes low, the CKDC-III sets RESET low to reset the whole system (J). And, the +5V supply is held at 4.75V or higher voltage, after which the voltage drops to a level that the logic circuit does not operate.

## 2) Key and switch scanning

Strobes ST0 ~ ST3 are decoded on the keyboard by two 74LS138 3-to-8 decoders to generate 16 strobe signals of S15 ~ S0.

The key matrix consists of 16 strobe lines and 16 returns lines of KR0A, KR1A, KR2A, KR3A, KR0B, KR1B, KR2B, and KR3B.

To minimize interfacing lines between the CKDCIII and the keyboard unit, two multiplexers (74HC153) are used to multiplex signals by the timing controlled with the signals KEX0 and KEX1 which are sent to the CKDCIII on the return lines of KR0 ~ KR3.

## Timing ST

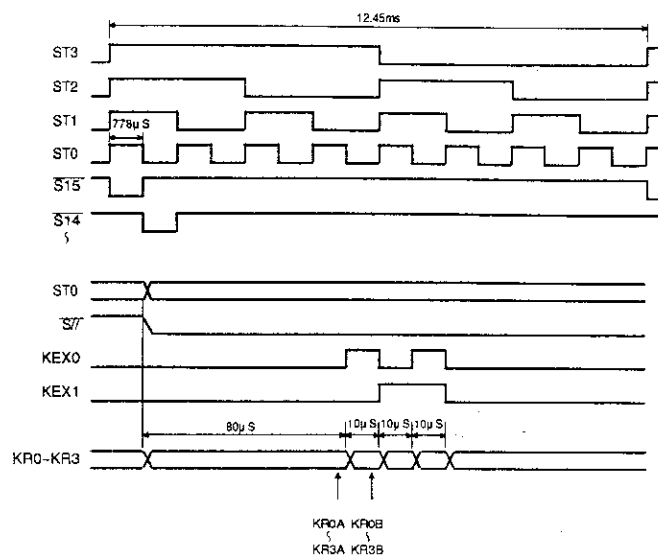


Fig. 9-3

The mode switch is provided with a special return line  $\overline{MODR}$ , apart from the above return lines.

In the same manner, the clerk, paper feed key (J/R), and receipt on/off switches use  $\overline{CFSR}$  as the return line.

## 3) DISPLAY CONTROL

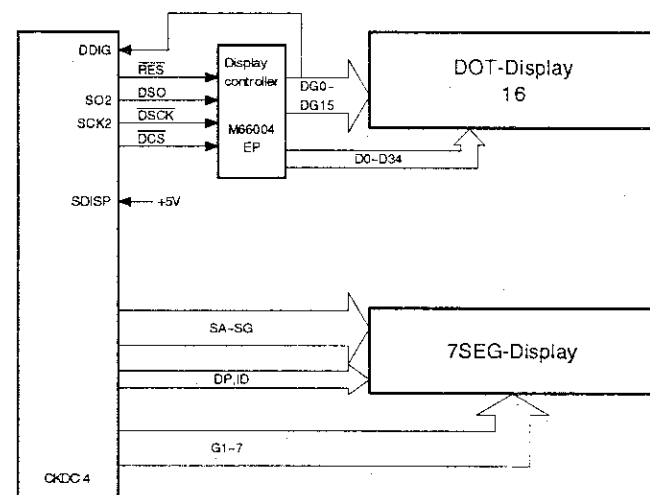


Fig. 9-4

CKDC4 directly drives the 7-segment display unit and the dot display is driven via M66004FP.

### <7-segment display>

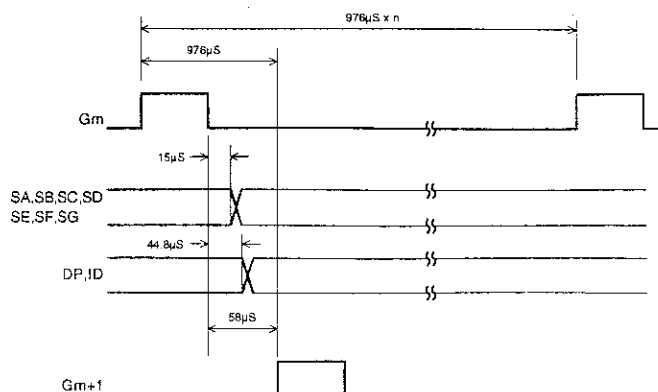


Fig. 9-5

## &lt;Dot display&gt;

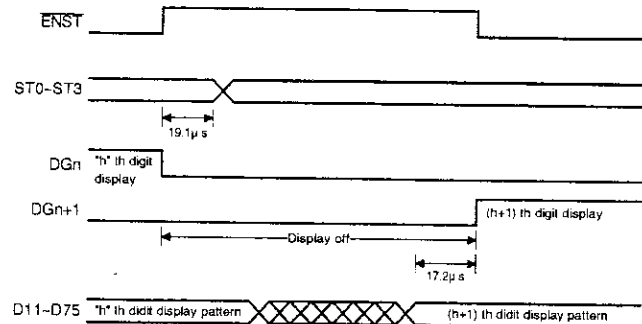


Fig. 9-6

**IMPORTANT:**

The CKDCIII lines are not high voltage resistive ports. Damage may occur to the CKDC4 if lines are ahorted carelessly when using oscilloscope probes.

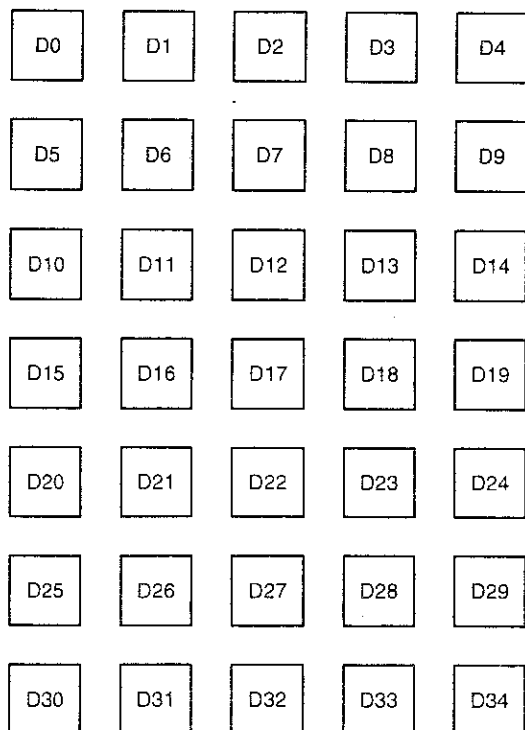
- Dot matrix tube  
A 4-bit binary output signals (ST0-ST3) from CDKC4 are converted into the digit drive signal (DG0-DG15) in the M66004FP.

## &lt;Dot display control&gt;

The CKDC4 controls the character segment (5 x 7) and the indicator of the dot display by using the controller (M66004FP) for dot display control.

## ① M66004PF/Dot display control signal

Signal name	Contents	Pin/Remark
DSO	Serial data output signal for M66004FP	C-MOS pin
$\overline{DSCK}$	Serial shift clock output signal for M66004FP	C-MOS pin. Requires to be pulled up
$\overline{DCS}$	Chip select output signal for M66004FP	C-MOS pin



## 10. Power supply circuit

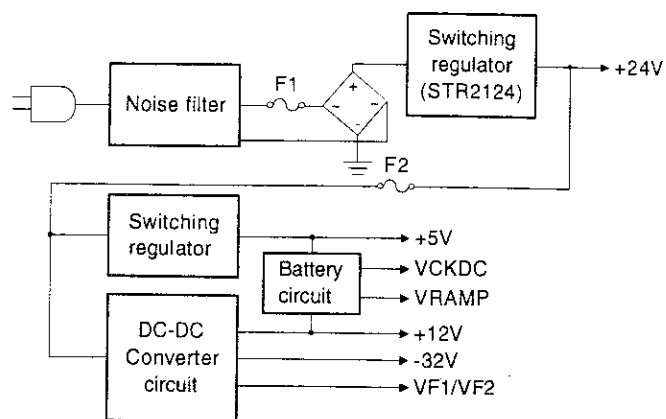


Fig. 10-1

- +24V: Printer, solenoid power
- +5V: VCC (Logic power)
- +12V: Battery charge, IN-LINE driver power
- 32V: Display tube power
- VF1, VF2: Display tube power (AC)
- VRAM: Battery back-uped power
- VCKDC: CKDC III Back-up power

For the DC-DC converter, refer to section 8 of cash register Basic manual.

## 11. Switching regulator circuit

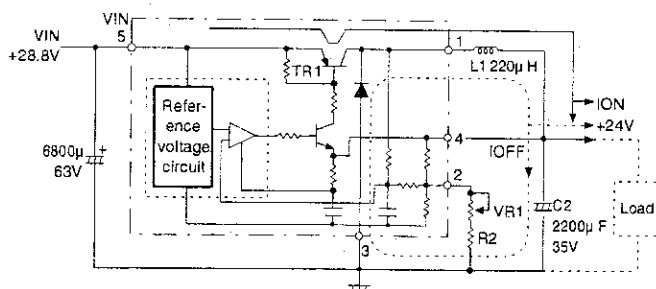


Fig. 11-1

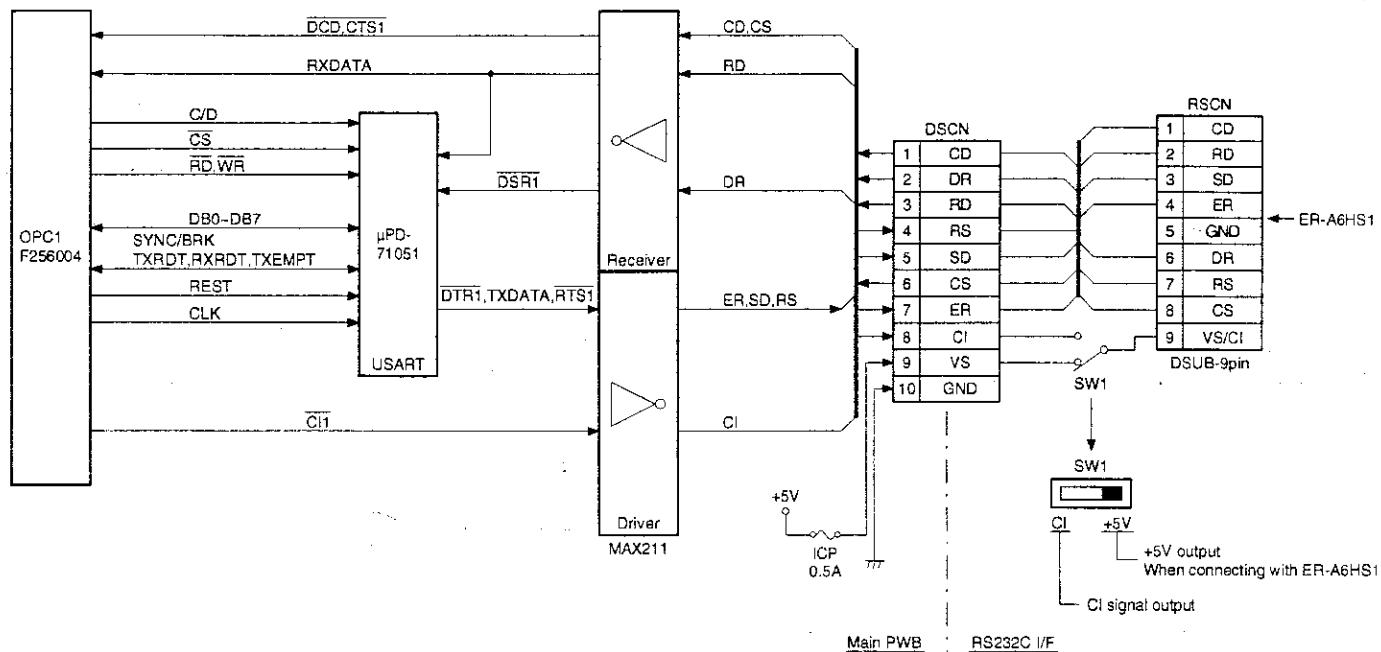
By switching VIN (+28.8V) by the transistor TR1 within the STR2124, DC+24V supply is obtained through the LC network. Stable +24V is obtained by controlling on/off duty of TR1.

- ION: Current when TR1 is on.
- IOFF: Current when TR1 is off.

## 12. Scanner interface

The ER-A610 includes the RS-232 interface which has the power supply function to the hand scanner (ER-A6HS1) as a standard provision.

### 1) Block diagram



When the ER-A6HS1 is connected, +5V power is supplied to Pin 9 of the RS-232 connector.

SW1 on the RS-232 interface allows switching of the VS signal (+5V) and the CI signal.

#### CAUTION

A current of 100mA flows through the DSCN connector 8 pin. If a current of 500mA or more flows even in a moment, ICP 0.5A is opened.

## 2) Description of main LSI

### 2)-1. OPC1 (F256004PJ)

#### ① General description

The OPC1 is a gate array of integrated peripheral circuits of RS-232/Simple IRC interface.

One chip of the OPC1 is equipped with four communication circuits. (Three of them are for RS-232 only: UNIT 0 ~ 2, one is for selection of simple IRC/RS-232: UNIT 3)

The ER-A610 uses UNIT3 (RS-232 interface).

UNIT NO.	Purpose	ER-A610
UNIT0	RS-232	Not used.
UNIT1	RS-232	Not used.
UNIT2	RS-232	Not used.
UNIT3	RS-232/Simple IRC	Used.

Each UNIT of the OPC1 has the following functions:

#### ① Timer function

Used for the timer between characters in data reception.

#### ② Address decode

USART chip select output and own select.

#### ③ Interruption control

RSRQ, TRRQ output using outputs from USART (TRNRDY, TRNEMP, RCVRDY, BRK) and RS-232 control signals ( $\overline{CI}$ ,  $\overline{CTS}$ ,  $\overline{CD}$ ) as interruption factors.

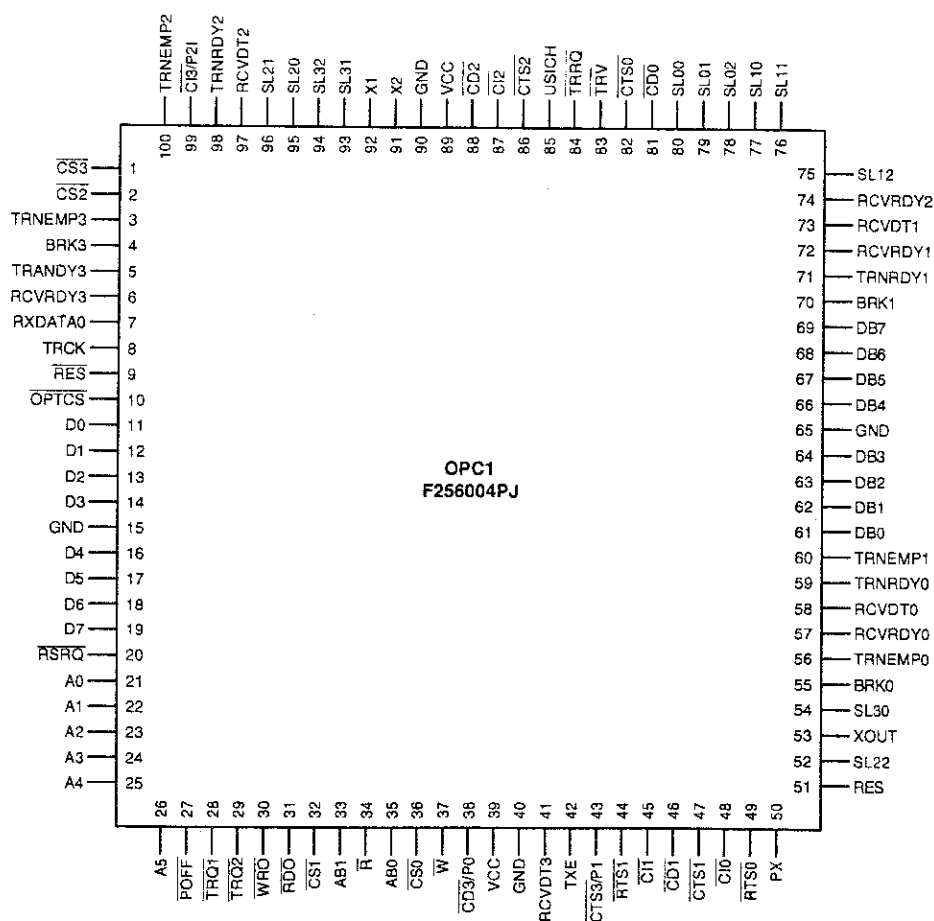
(For the simple IRC, TRNEMP is excluded.)

\* RSRQ: For RS-232

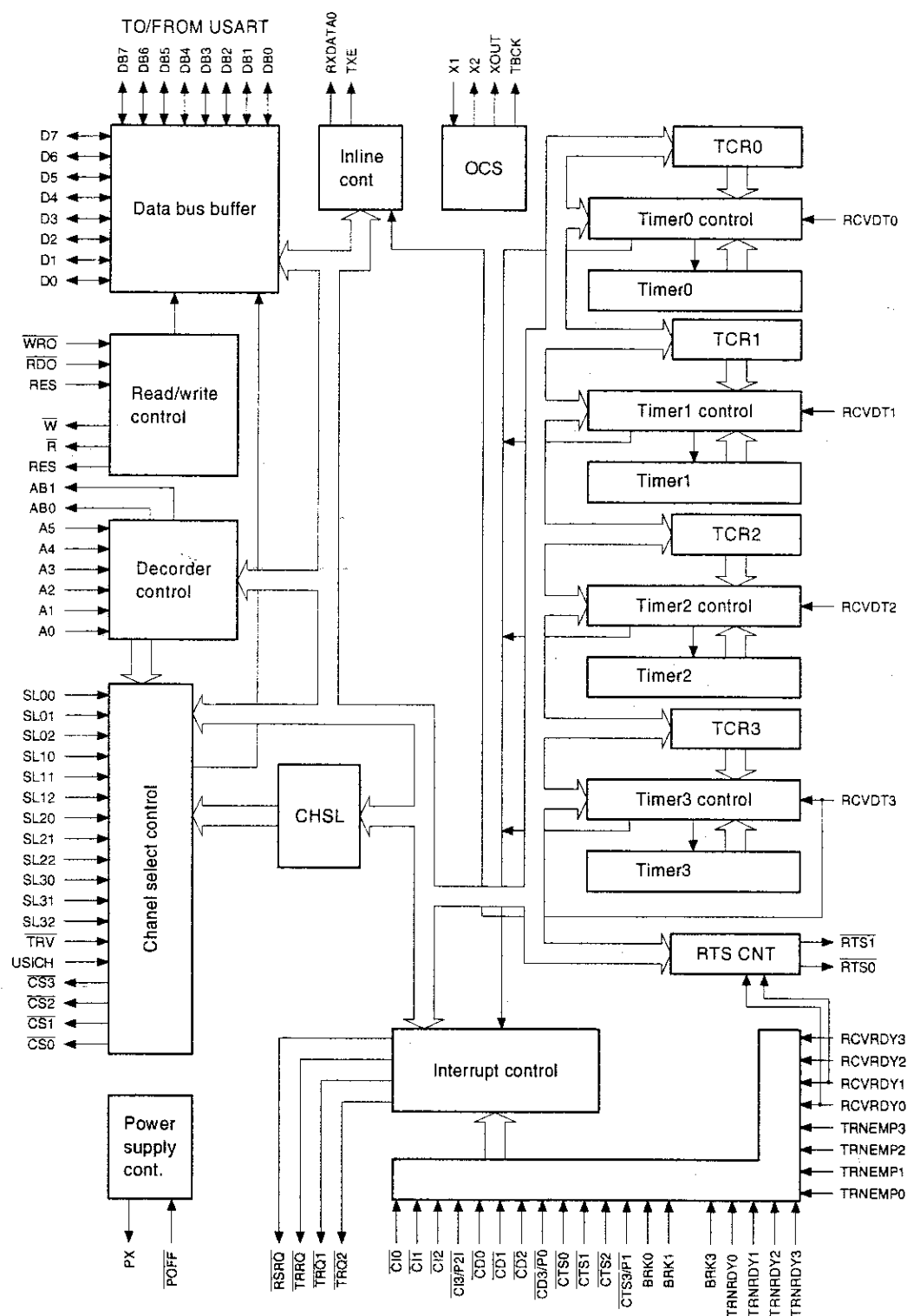
TRRQ(Not used): For simple IRC

#### ④ Simple IRC send/receive control (UNIT3 only) : Not used

#### ② Pin configuration



## ③ Block diagram



## ④ Pin description

OPC1 pin table

The signals marked with "-" at the end are LOW active signals. Example: "CS1-" = "CS1"

No.	Pin No.	Pin name	I/O	Pin	ER-A610	Description
1	80	SL00	I	ICU	GND	RS-232/UNIT0 channel select
2	79	SL01	I	ICU	GND	
3	78	SL02	I	ICU	GND	
4	77	SL10	I	ICU	GND	RS-232/UNIT1 channel select
5	76	SL11	I	ICU	GND	
6	75	SL12	I	ICU	GND	
7	95	SL20	I	ICU	GND	RS-232/UNIT2 channel select
8	96	SL21	I	ICU	GND	
9	52	SL22	I	ICU	GND	
10	54	SL30	I	ICU	+5V	RS-232/UNIT3 channel select
11	93	SL31	I	ICU	GND	
12	94	SL32	I	ICU	GND	
13	36	CS0-	O	O	NC	RS-232 USART chip select
14	32	CS1-	O	O	NC	
15	2	CS2-	O	O	NC	
16	1	CS3-	O	O	/CS	RS-232/INLINE USART chip select
17	81	CD0-	I	IS	+5V	RS-232 control signal CD- input
18	46	CD1-	I	IS	+5V	
19	88	CD2-	I	IS	+5V	
20	38	CD3-/P0-	I	IS	/DCD1	RS-232 CD-/INLINE P0-
21	82	CTS0-	I	IS	+5V	RS-232 control signal CTS- input
22	47	CTS1-	I	IS	+5V	
23	86	CTS2-	I	IS	+5V	
24	43	CTS3-/P1-	I	IS	/CTS1	RS-232 CTS-/INLINE P1-
25	48	CI0-	I	IS	+5V	RS-232 control signal CI- input
26	45	CI1-	I	IS	+5V	
27	87	CI2-	I	IS	+5V	
28	99	CI3-/P2I	I	IS	/DSR1	RS-232 CI-/INLINE P2I
29	55	BRK0	I	ISC	GND	RS-232 USART BREAK signal
30	70	BRK1	I	ISC	GND	
31	27	POFF-	I	IS	/POFF	POFF signal (LOW: P-OFF, HIGH: P-ON)
32	4	BRK3	I	IS	SYNC/BRK	RS-232/INLINE USART BREAK signal
33	57	RCVRDY0	I	ISC	GND	RS-232 USART RCVRDY signal
34	72	RCVRDY1	I	ISC	GND	
35	74	RCVRDY2	I	ISC	GND	
36	6	RCVRDY3	I	IS	RXRDT	RS-232/INLINE USART RCVRDY signal
37	59	TRNRDY0	I	ISC	GND	RS-232 USART TRNRDY signal
38	71	TRNRDY1	I	ISC	GND	
39	98	TRNRDY2	I	ISC	GND	
40	5	TRNRDY3	I	IS	TXRDT	RS-232/INLINE USART TRNRDY signal
41	56	TRNEMP0	I	ISC	GND	RS-232 USART TRNEMP signal
42	60	TRNEMP1	I	ISC	GND	
43	100	TRNEMP2	I	ISC	GND	
44	3	TRNEMP3	I	IS	TXEMPT	RS-232/INLINE USART TRNEMP signal
45	58	RCVDT0	I	ISC	+5V	RS-232 RCVDT signal (LOW: TIMER START)
46	73	RCVDT1	I	ISC	+5V	
47	97	RCVDT2	I	ISC	+5V	
48	41	RCVDT3	I	IS	RXDATA	RS-232/INLINE RCVDT signal
49	20	RSRQ-	O	3S	/IRQ2	RS-232 IRQ- signal
50	83	TRV-	I	ISC	+5V	INLINE YES/NO
51	7	RXDATA0	O	O	NC	INLINE RXDATA OUT
52	42	TXE	O	O	NC	INLINE TRNS ENABLE
53	84	TRRQ-	O	3S	NC	INLINE IRQ- signal
54	28	TRQ1-	O	3S	/TRQ1	TIMER IRQ signal (RS-232)



No.	Pin No.	Pin name	I/O	Pin	ER-A610	Description
55	29	TRQ2-	O	3S	NC	TIMER IRQ signal (INLINE)
56	11	D0	I/O	IOU	D0	DATA BUS (MAIN)
57	12	D1	I/O	IOU	D1	
58	13	D2	I/O	IOU	D2	
59	14	D3	I/O	IOU	D3	
60	16	D4	I/O	IOU	D4	
61	17	D5	I/O	IOU	D5	
62	18	D6	I/O	IOU	D6	
63	19	D7	I/O	IOU	D7	
64	61	DB0	I/O	IOU	DB0	DATA BUS (USART)
65	62	DB1	I/O	IOU	DB1	
66	63	DB2	I/O	IOU	DB2	
67	64	DB3	I/O	IOU	DB3	
68	66	DB4	I/O	IOU	DB4	
69	67	DB5	I/O	IOU	DB5	
70	68	DB6	I/O	IOU	DB6	
71	69	DB7	I/O	IOU	DB7	
72	21	A0	I	I	A0	ADDRESS BUS (MAIN)
73	22	A1	I	I	A1	
74	23	A2	I	I	A2	
75	24	A3	I	I	A3	
76	25	A4	I	I	A4	
77	26	A5	I	I	A5	
78	10	OPTCS-	I	I	/OPTCS	OPTION CHIP SELECT (from MAIN)
79	31	RDO-	I	I	/RDO	READ signal (from MAIN)
80	30	WRO-	I	I	/WRO	WRITE signal (from MAIN)
81	9	RES-	I	IS	/RES	RESET signal (from MAIN)
82	34	R-	O	O	/RD	READ signal (To USART)
83	37	W-	O	O	/WR	WRITE signal (To USART)
84	51	RES	O	O	RES	RESET signal (To USART)
85	92	X1	O		NC	cillation circuit
86	91	X2	I		X2	
87	53	XOUT	O	O	XOUT	Clock for USART
88	8	TRCK	O	O	/TXCLK	T/R clock for 1CH USART
89	35	AB0	O	O	C/D	ddress bus for USART (COMMAND or DATA SELECT)
90	33	AB1	O	O	NC	
91	85	USICH	I	ISC	+5V	UNIT3 USART 1CH/2CH select
92	50	PX		O	NC	Power source clock
93	39	VCC			+5V	
94	89	VCC			+5V	
95	15	GND			GND	
96	40	GND			GND	
97	65	GND			GND	
98	90	GND			GND	
99	49	RTS0-	O	O	NC	RS-232 control signal RTS- output
100	44	RTS1-	O	O	NC	

ICU : CMOS level input (internal pullup resistor)

O : Output

IS : TTL level input (internal schmit circuit)

ISC : CMOS level input (internal schmit circuit)

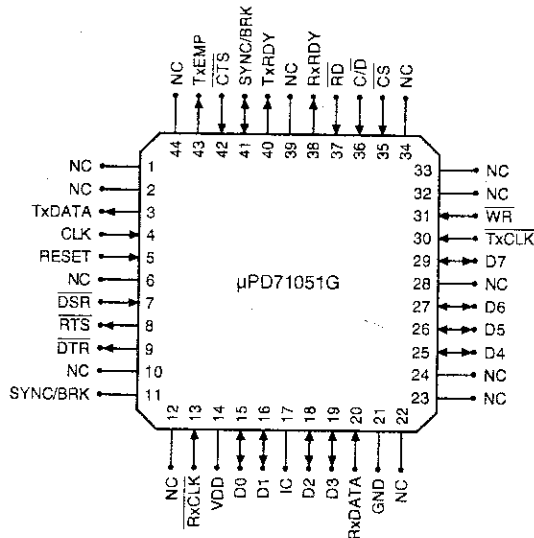
3S : Three state output

IOU : I/O port (internal pullup resistor)

## 2)-2. Transmission Controller 71051G (USART)

The 7051G is a Universal Synchronous/Asynchronous Receiver/Transmitter (USART) Chip designed for data communications in microcomputer systems. The USART is used as a peripheral device and is programmed by the CPU to operate using virtually any serial data transmission technique presently in use. The USART accepts data characters from the CPU in parallel format and then converts them into a continuous serial data stream for transmission. Simultaneously it can receive a serial data stream and convert them into parallel data characters for the CPU. The USART will signal the CPU whenever it has received a character for the CPU. The CPU can read the complete status of the USART at any time. These include data transmission errors and control signals such as SYNC/BRK, TxEMPTY.

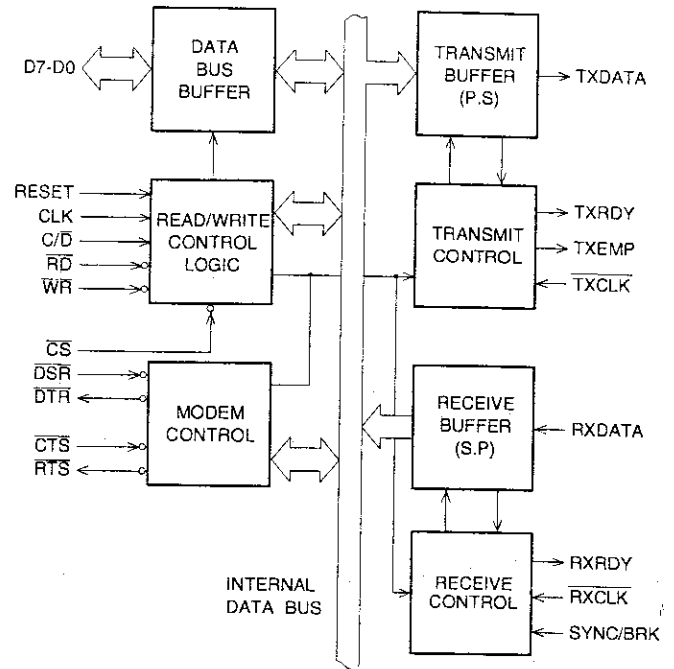
### ① PIN CONFIGURATION



### ② PIN DESCRIPTION

Pin name	Description
D0-D7	Data bus (8bits)
TXDATA	Transmitter data
TXCLK	Transmitter clock
TXRDY	Transmitter ready
TXEMP	Transmitter empty
RXDATA	Receiver data
RXCLK	Receiver clock
RXRDY	Receiver ready
CLK	Clock pulse
RESET	Reset
DSR	Data set ready
RTS	Request to send data
DTR	Data terminal ready
WR	Write data
CS	Chip enable
C/D	Control or data is to be written or read
RD	Read data
SYNC/BRK	Break
VDD	+5V

### ③ BLOCK DIAGRAM



## CHAPTER 5. TEST FUNCTION

### 1. General

1) This diagnostic program has been developed for diagnosing machine functions in the field. The program is contained within the ER-A610.

The diagnostic program is stored in the external ROM which will be executed by the CPU (H8/510) which requires the following diagnostic operations:

- Proper power supply voltages are mandatory for logic circuits (+5V, VRAM, VCKDC, POFF, 12V, +24V).
- CPU input/output pins, CPU internal logic, CKDC4, MPCAS, TPRC, address decoder, address bus, data bus, and common ROM/RAM must be working properly.

### 2. Operational procedure

To start the diagnostic program, you must enter the following command.

3-digit test item number → **[TL]** key in the SRV mode.

The key assignment must be properly set and a part for ROM and RAM must be operating properly to go into this mode because the control jumps to the program area in the SRV mode. A master reset must be performed before operating the ECR for the first time. After any option is installed, a program reset is required. When the master reset or program reset is performed, be sure to check the printout on the journal paper.

Master reset: Turn power on in the SRV mode and change it to the SRV mode with the **[JF]** key pressed.

Journal print: MASTER RESET \*\*\*

Program reset: Turn power on in the SRV mode and change it to the SRV mode.

Journal print: PRG. RESET \*\*\*

### 3. Test command list

With the SRV mode and the following command entry, the test starts.

Code	Description
100	Display test-1
101	Key, clerk, and switch position code display
102	R/J printer test
103	Slip printer test
104	Keyboard test
105	Mode switch test
106	Validation sensor and near end sensor test
107	BOF, TOF and IFV test
108	Calendar oscillator test
109	SSP test
110	Drawer-1 open and sensor test
111	Drawer-2 open and sensor test
112	Drawer-3 open and sensor test
113	Drawer-4 open and sensor test
116	Display test-2
117	SIO test-1
120	Standard RAM test
130	Standard ROM test
150	R/J printer dot pulse width adjustment
200	Option RAM chip test
206	
300	Option RAM address test
306	
400	Option ROM test
500	RS-232 Channel check
501	RS-232 Channel 1 check

#### [1] Display test-1

① Key operation  
100 → **[TL]**

② Functional description

The following is displayed:

DOT DISPLAY : 0123456789:AaBbCc

POP-UP DISPLAY:

4.5.6.7.8.9.

③ Check the following items:

- Check for proper activation of display elements.
- Check for blur, uneven illumination, and partial omission.

④ Test termination

Press any key. The test terminates with the test and message printed.

100  
Test termination print

#### [2] Key, cashier, and switch position code display

① Key operation  
101 → **[TL]**

DOT DISPLAY : C L O O O S W O K O O O

Clerk code                      Receipt SW code                      Key code

② Functional description

Key, clerk, and receipt switch codes are displayed.

③ Check the following items:

Change key and switch positions for proper display activation.

Clerk code: Stay down key  
000 (off state)  
001 (Clerk A)  
002 (Clerk B)  
004 (Clerk D)  
008 (Clerk E)

Receipt switch code: 2 (on state) 3 (off state)

Key code: -- (simultaneous two key)  
depression, invalid entry  
001 ~ 126

NOTE: Refer to JOB#104, key soft code, for the key code. (Fig. 3-2.)

④ Test termination

Change the MODE switch position other than SRV position to terminate the test. The test termination message is printed.

101  
Test termination print

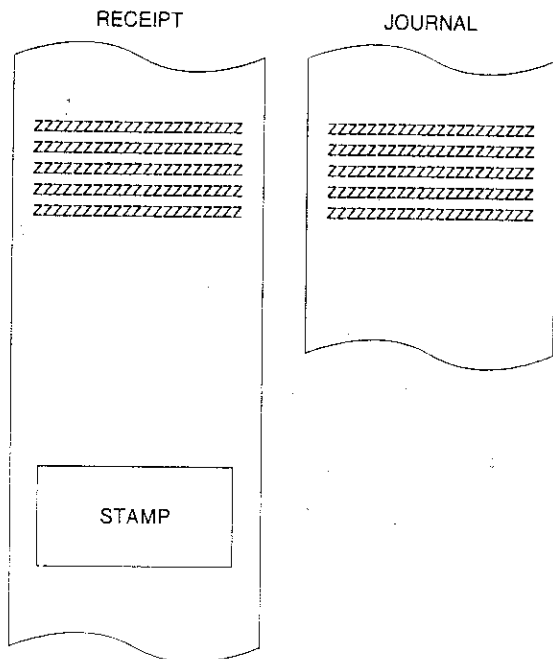
**[3] R/J printer test**

## ① Key operation

102 → **TL**

## ② Content

Five lines of "Z" characters are printed as follows on the receipt and the journal regardless of receipt (ON/OFF) switch setting.



## ③ Check content

1. Check that the slanted lines of "Z" characters are clearly printed.
2. Check that the characters are printed at a uniform density.
3. Check the paper feed operation and the logo print.
4. Check partial cut and full cut.

## ④ Termination

This check is terminated automatically.  
The termination print is not performed.

**[4] Slip printer test**

## ① Key operation

As slip must be set on the print table.

103 → **TL**

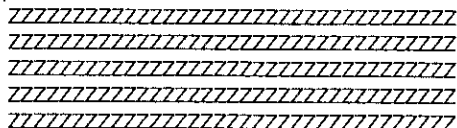
## ② Functional description

Regardless of paper setting, 35 digits of "Z" are printed on five lines, then the printer stops after releasing the paper.

## ③ Check the following items:

- a) Print starting position must line up in the same column.
- b) Check the print quality.
- c) Make sure that the paper is released at the termination.

&lt;Print sample&gt;



## ④ Test termination

The test terminates automatically. If the paper release lever is not up, perform JOB#107 BTF, IFV test to release the paper.

If the ER-31SP (printer and I/F PWB unit) is not connected when performing this test, the following error display is made.

To cancel the error state, press any key or shift the mode key position, and the R/J printer will print the error print, terminating the operation.

Error display:

DOT DISPLAY : S L I P I / F E R R

Error print:

R/J printer: E----- 103

**[5] Keyboard test**

## ① Key operation

104 → **TL**

## ② Functional description

Key actions of the standard version ER-A610 are tested.

Press keys on the keyboard in the order given in the figure 3-1. If the test has been successful, the test terminates with the printout showing correct action of every key. If an error has occurred in the course of a test, an error message will be printed immediately upon occurrence of the error. When the test is interrupted, the normal test termination printout is not produced.

## ③ Check the termination print

## ④ Test termination

When the last key (see next page) is depressed, the test terminates with the termination printout.

104 | E--\*\*\* 104

Test termination print

Error print

\*\*\*: Key code that caused the error

**(Additional description on the program specifications)**

When an error occurs during check, the operation is not terminated and the key to be checked on the key table is not incremented and is kept at standby state for being checked.

To terminate compulsorily, press the END key (at the right bottom). In this case also, the error print is not made.

The display specification is as follows:

DOT DISPLAY : KEY - BOARD

Key code

[ER-A610]

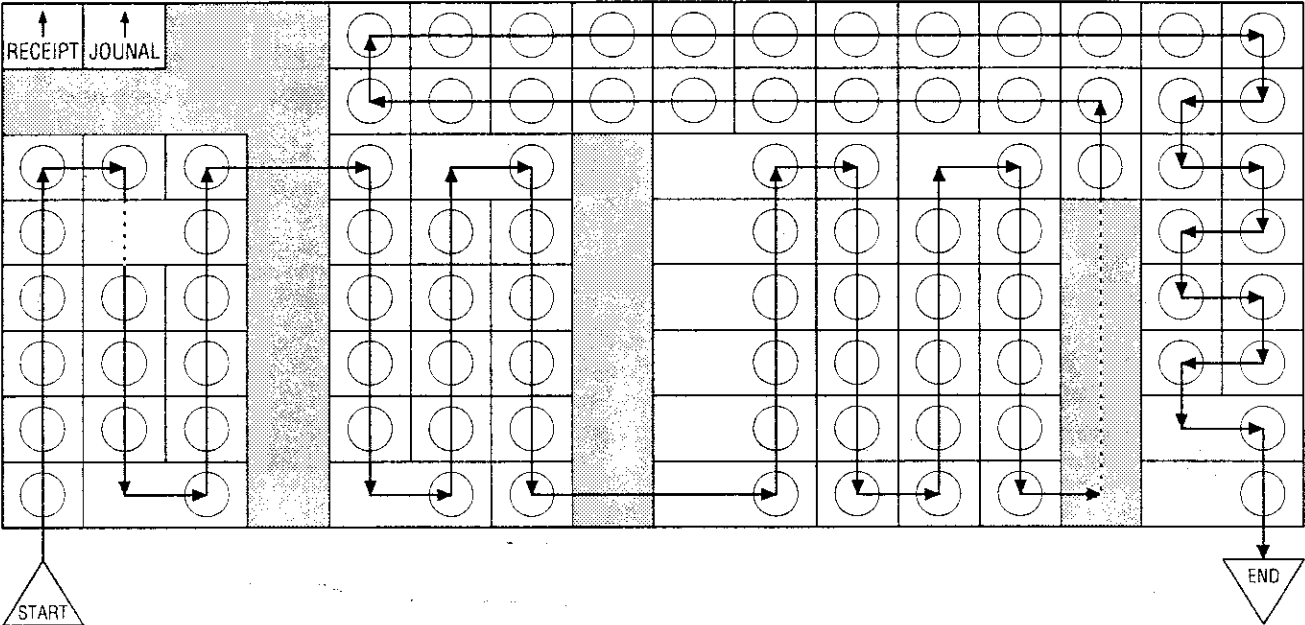


Fig. 3-1: TEST SEQUENCE

↑ RECEIPT	↑ JOURNAL	22	30	38	46	54	62	70	78	86	94	102	110	118	126
7	14	21	29	37	45	53	61	69	77	85	93	101	109	117	125
6	13	20	28	36	44	52	60	68	76	84	92	100	108	116	124
5	12	19	27	35	43	51	59	67	75	83	91	99	107	115	123
4	11	18	26	34	42	50	58	66	74	82	90	98	106	114	122
3	10	17	25	33	41	49	57	65	73	81	89	97	105	113	121
2	9	16	24	32	40	48	56	64	72	80	88	96	104	112	120
1	8	15	23	31	39	47	55	63	71	79	87	95	103	111	119

Fig. 3-2: KEY CODE TABLE

**[5] Mode switch test**

## ① Key operation

105 → **TL**

## ② Functional description

This test is applicable for checking of the MODE switch. The MODE switch must be changed as described below to do the test.

Initial state mode: SRV mode

Mode check

Change the MODE switch position in the order given below starting from the SRV position.

DOT DISPLAY: **MODE SWITCH** X

X: 0-7, E, F

Mode: SRV PGM2 PGM1 (E) OP X/Z REG  
X : 0 1 2 (E) 3 4

SRV X2/Z2 X1/Z1 MGR  
0 7 6 5

(X: E-intermediate position, F-multiple errors)

When the mode key settings in the sequence other than specified is met or when any key pushed, the program execution will terminate immediately upon occurrence, with the error printout produced, except for the mode switch in the middle position. To avoid this, the mode switch must be rotated correctly. Because nothing is interrogated until the mode key returns to the SRV position once after the switch has turned to the "X2/Z2" positions, it needs not to be rotated slowly.

## ③ Check the following items:

Check to see if the following are displayed and that the termination print is produced

## ④ Test termination

When the test has been completed according to the given procedure, the test automatically terminates with the termination message printed. To terminate the test in the middle of an operation, merely depress any key, then, the test will terminate with the error message printed. When an error was encountered, the test automatically terminates with the error message printed on the printer.

105 | E ---- 105

Test termination print      Error print (any key depression)

**[6] Validation sensor and near end sensor test**

The validation sensor and the near end sensor are optional units.

## ① Key operation

106 → **TL**

## ② Functional description

State of the validation and near end sensor is sensed and displayed.

## ③ Check the following items:

On and off actions of the validation and near end sensors are tested and their results are displayed.

ON/OFF check is performed for VDS and NES and the display is checked.

DOT DISPLAY: **VDS x y NES z**

x: State of the VDSR sensor  
y: State of the VDSJ sensor  
z: State of the NES sensor

Display	X/Y/Z	Description
VDSR	O	Validation sensor (JOURNAL) not detected
	C	Validation sensor (JOURNAL) detected
VDSJ	O	Validation sensor (RECEIPT) not detected
	C	Validation sensor (RECEIPT) detected
NES	O	Journal side paper roll near end detected.
	C	Journal side paper roll near end not detected.

NOTE: "C" is always displayed when no sensor is used.

## ④ Test termination

Any key depression causes the test to terminate with the termination message on printout.

106

Test termination print

**[7] BOF, TOF and IFV test**

## ① Key operation

107 → **TL**

## ② Functional description

After releasing the paper, the state of BOF, TOF, and IFV sensor are sensed and displayed.

## ③ Check the following items:

BOF, TOF: Check the paper set condition.

IFV: Check the connection of the ER-31SP slip printer and slip printer interface.

Check the on and off actions.

DOT DISPLAY: **IFV z B.T.F. x y**

x: State of IFV  
y: State of the BOF sensor  
z: State of the TOF sensor

Display	x/y	Description
IFV	O	Slip printer or slip printer interface not in connection
	C	Slip printer or slip printer interface connection
BOF	O	Slip paper not detected
	C	Slip paper detected
TOF	O	Slip paper not detected
	C	Slip paper detected

## ④ Test termination

Any key depression terminates the test with the termination print.

107

Test termination print

Note 1: Before performing this test, connect the slip printer and the slip printer I/F. If not, "SLIP I/F ERR" occurs.

Note 2: Before turning on/off the connector for IFV checking, be sure to set the mode to other than SRV and turn off the power.

**[8] Calendar oscillator test**

## ① Key operation

108 → **TL**

## Functional description

This program is used to test the calendar oscillator function.

DOT DISPLAY : T I M E R   C H E C K

POP UP DISPLAY :

\* \* - \* \*

\*\*-\*\*: Present time

② Check the following items:

i) Testing blinking "-". (500ms ON and OFF)

③ Test termination

Any key depression terminates the test with the termination print.

108  
Test termination print

### [9] SSP test

① Key operation

109 → TL

② Functional description

If an SSP is programmed, its contents are automatically checked and the result is printed.

③ Check the following items:

Check printing of the termination message.

④ Test termination

The test terminates automatically after printing the termination print.

109    |    E -----    109    |    F -----    109    |  
Normal end print    Error print    SSP table full print (NOTE)

Note: In this SSP check, set the data for check in the empty area of SSP entry REG and erase the data for check after completion of check. Therefore, SSP setting before check is not cleared. If, therefore, there is no SSP entry REG remained for SSP check, F-print (SSP entry register full print) is performed to terminate the program without check.

### [10] Drawer open sensor test

① Key operation

110~113 → TL

② Functional description

The drawer indicated by the job number is opened to check the proper action.

Drawer opened: O indicated

Drawer closed: C indicated

110: Drawer-1: Option drawer

111: Drawer-2: Remote drawer

112: Drawer-3: Remote drawer

113: Drawer-4: Remote drawer

DOT DISPLAY : D R A W E R   x                      y

x: 1~4

y: O= Drawer opened  
C= Drawer closed

③ Check the following items:

a) Check opening of the specified drawer.

b) Check the display indication when the drawer is open and close.

④ Any key depression terminates the test with the termination print.

11X  
Test termination print    X: 0~3

### [11] Display test-2

① Key operation

116 → TL

② Functional description

The display CGs in CKDC4 are checked. The 256 CGs are grouped into 32 blocks and each 8 characters is displayed on the dot display.

The check start with CG code 00H - 07H, and the following blocks are sequentially displayed when any key is pressed.

DOT DISPLAY : x y : ○ ○ ○ ○ ○ ○ ○ ○

○: CG display position

xy: The initial code of each block is displayed in hexadecimal (For example, A0, B8)

③ Check the following items.

1. Check that the display is normal.

2. Check that there is no blur, defects, and unevenness.

④ Test termination

To terminate the test, set the mode key to any mode other than SRV mode.

116  
Test termination print

### [12] SIO test-1

① Key operation

117 → TL

② Functional description

The following two kinds of loopback tests are carried out using the special service tool (UKOG-6704RCZZ) to check the trans and receive data, ready, and not ready signals.

Test-1: Checks ER - DR, RS-CD and RR-CS

Test-2: Checks TXD - RXD

③ Check the following items:

Successful test results must be checked on the display and the termination message print.

④ Test termination

117    |    EX -----    117    |

Termination print

X = 1: Non connect error

2: Verify error

3: Hardware error

4: P-OFF

5: Timer overflow error

### [13] Standard RAM test

① Key operation

120 → TL

② Functional description

Perform the following check for the standard RAM 128 KByte SRAM. The memory contents should not be changed before and after the check.

Perform the following processes for memory address to be checked (1C0000H~1DFFFFH).

PASS1: Save memory data.

PASS2: Write data "0000H."

PASS3: Read and compare data "00H," write data "55H."

PASS4: Read and compare data "55H," write data "AAH."

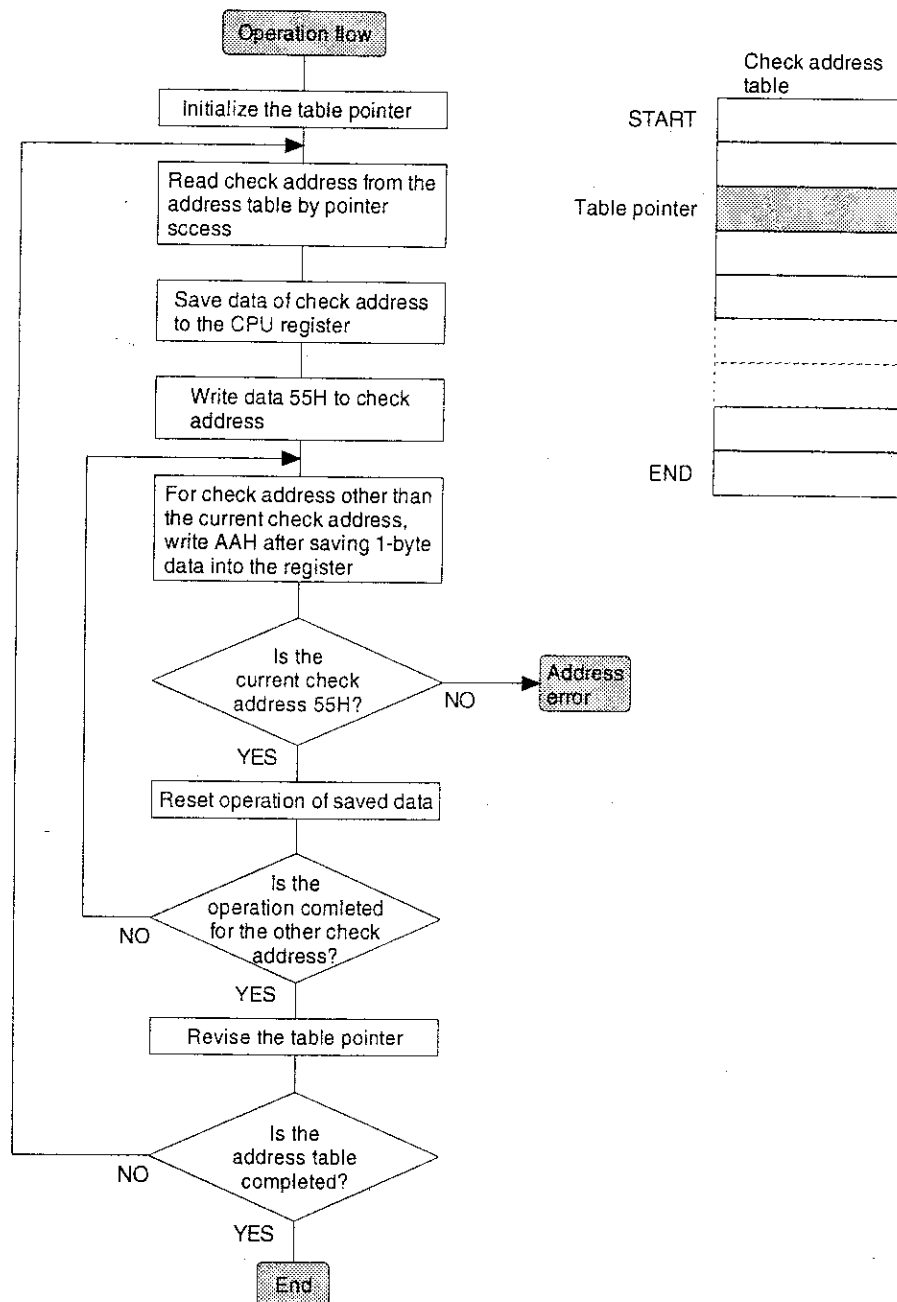
PASS5: Read and compare data "AAH."

PASS6: Restore the memory data.

If a compare error occurs in the check sequence PASS1-PASS6, an error print is made. If no error occurs through all address, the check ends normally.

The following address check is performed further.

Check point address = 1C0000H, 1C0001H  
 1C0002H, 1C0004H  
 1C0008H, 1C0010H  
 1C0020H, 1C0040H  
 1C0080H, 1C0100H  
 1C0200H, 1C0400H  
 1C0800H, 1C1000H  
 1C2000H, 1C4000H  
 1C8000H, 1D0000H





- ③ Check the following items:  
Check the termination printout.

- ④ Test termination  
The test terminates after printing the termination printout.  
Termination printout:

Normal termination		120
Abnormal termination	Ex -----	120
		*****

X = 1: Data check error  
2: Address check error

Note: When an error occurs, the error print is performed and the check is terminated. The error occurrence address is shown in hexadecimal at positions shown with \*\*\*\*\*.

#### [14] Standard ROM test

- ① Key operation  
130 → **TL**
- ② Functional description  
Sum check of the standard ROM (C00000H - C7FFFFH) is performed. If the lower two digits of SUM is 10H, it is normal.

DOT DISPLAY: S T D R O M

- ③ Check the following items:  
Check the printout after the test.

- ④ Test termination  
The test automatically terminates with termination message.

Normal termination print		130	
	S-ROM	27040*****	
		*****	Note
Error termination print	E -----	130	
	S-ROM	27040*****	
		*****	

Note: "\*\*\*\*\*" means the ROM version number.  
The underlined section (10 bytes) of code table is provided in the ROM as a standard and the table content is always printed.

The table position is the upper 10 digits of the ROM address.  
The check sum correction address is the last address -0FH.

Note: In the case of the ER-ROM, the ROM version number is displayed in the upper and the lower stages.  
In the case of the MASK-ROM (future specification), the MASK ROM code is displayed in the upper stage, and the ROM version number is displayed in the lower stage.

		130
S-ROM	27040RAJ1A	
	RAJ1A	
	400	
O-ROM	27020RAP1A	
	RAP1A	

#### [15] R/J printer dot pulse width adjustment

The dot pulse width adjust circuit is provided to control the width of the current applied to the dot head of the printer KI-OB6754RC01, according to a supply voltage fluctuation.

When the circuit is changed with a new one for such as a repair work, the dot pulse width needs to be adjusted using the 200K pot VR1.

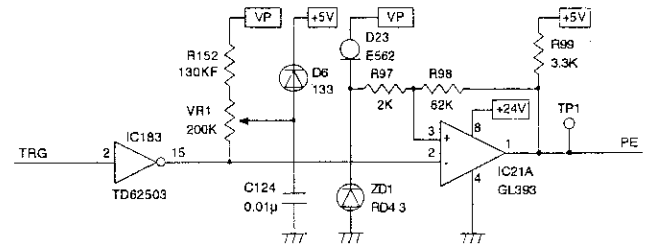


Fig. 3-3

#### Dot pulse adjusting method

1. Turn power on.
2. Measure the voltage of the VP line between the fuse F1 and GND. Use a digital voltmeter capable of measuring 100mV steps.
3. Set the MODE switch to the SRV position and start the diagnostic program Job #150 with the next command procedure.  
150 → **TL**
4. Adjust pulse width of TPW at the test point TP1 as shown in the graph in Fig.3. The pulse width of TPW can be adjusted using the 200K pot VR1.
5. To terminate the diagnostic program, just press any key.

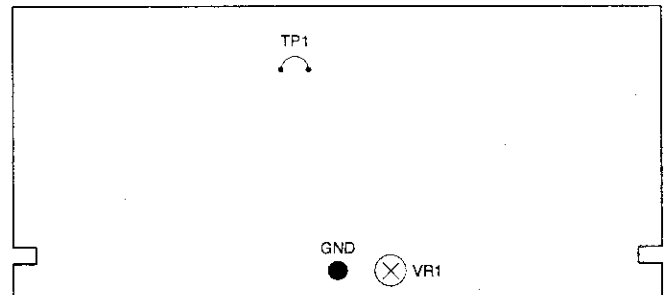


Fig. 3-4

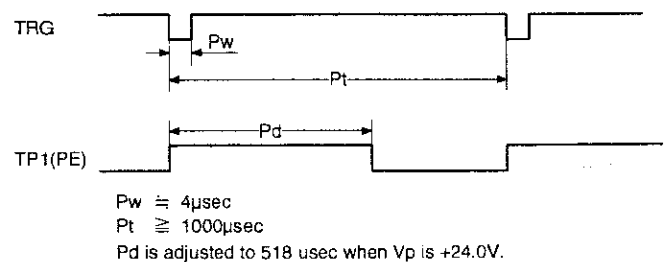


Fig. 3-5

\* For the adjustment of VP, refer to CHAPTER 7. SERVICE PRECAUTION. (Printer printing speed adjustment)

## [16] Option RAM test

## ① Key operation

20X → TL

JOB #NO.	RAM NO.	Memory to be checked	Address area to be checked
200	Option RAM (main)	ER-01RA	1E0000H 1E7FFFH
201	Option RAM (main)	ER-02RA	1E0000H 1FFFFFH
202	ER-01MB RAM1	ER-02RA+ER-01MB	1E0000H 21FFFFFH
203	ER-01MB RAM2	ER-02RA+ (ER-01MB+ER-02RA)	1E0000H 23FFFFFH
204	ER-01MB RAM3	ER-02RA+ (ER-01MB+ER-02RA×2)	1E0000H 25FFFFFH
205	ER-01MB RAM4	ER-02RA+ (ER-01MB+ER-02RA×3)	1E0000H 27FFFFFH
206	ER-02MB	ER-02RA+ER-02MB	1E0000H 2FFFFFH

## ② Content

The following check are performed for the optional RAM.

The following process is performed for memory address to be checked.

PASS1: memory data save

PASS2: Data "00H" write

PASS3: Data "00H" read and comparison, data "55H" write

PASS4: Data "55H" read and comparison, data "AAH" write

PASS5: Data "AAH" read and comparison

PASS6: Memory data restore

If a compare error is found in the check sequence from PASS1 to PASS6, error print (error code E1) is performed. If there is no error found to the end of the last address, the operation is completed normally.

Then the following address check is performed by judging the option chip to be integrated. The check point addresses are as follows:

Check Address	JOB200	JOB201	JOB202	JOB203	JOB204	JOB205	JOB206
1E0000H	○	○	○	○	○	○	○
1E0001H	○	○	○	○	○	○	○
1E0002H	○	○	○	○	○	○	○
1E0004H	○	○	○	○	○	○	○
1E0008H	○	○	○	○	○	○	○
1E0010H	○	○	○	○	○	○	○
1E0020H	○	○	○	○	○	○	○
1E0040H	○	○	○	○	○	○	○
1E0080H	○	○	○	○	○	○	○
1E0100H	○	○	○	○	○	○	○
1E0200H	○	○	○	○	○	○	○
1E0400H	○	○	○	○	○	○	○
1E0800H	○	○	○	○	○	○	○
1E1000H	○	○	○	○	○	○	○
1E2000H	○	○	○	○	○	○	○
1E4000H	○	○	○	○	○	○	○
1E8000H	—	○	○	○	○	○	○
1F0000H	—	○	○	○	○	○	○
200000H	—	—	○	○	○	○	○
210000H	—	—	○	○	○	○	○
220000H	—	—	—	○	○	○	○
240000H	—	—	—	—	○	○	○
260000H	—	—	—	—	—	○	○
280000H	—	—	—	—	—	—	○

"○" in the table shows that the check point address in the horizontal column is valid, and "—" shows it is invalid.

When any error occurs in this address check, error code E2 is printed.

## ③ Check the following items.

Check the termination print.

## ④ Test termination

The test terminates after printing the termination printout.

Termination print

Normal termination	20X
Abnormal termination	EY----- 20X
	*****

20X: JOB # (200~206)

Y: Error code

Note: When an error occurs error print is performed and the error address is displayed in position \*\*\*\*\* in hexadecimal.

**[17] Option RAM address test**

② Key operation  
30X → **TL** (X: 0~6)

JOB #NO.	RAM NO.	Memory to be checked	Address area to be checked
300	Option RAM (main)	ER-01RA	1E0000H 1E7FFFH
301	Option RAM (main)	ER-02RA	1E0000H 1FFFFFH
302	ER-01MB RAM1	ER-02RA+ER-01MB	1E0000H 21FFFFH
303	ER-01MB RAM2	ER-02RA+ (ER-01MB+ER-02RA)	1E0000H 23FFFFH
304	ER-01MB RAM3	ER-02RA+ (ER-01MB+ER-02RA×2)	1E0000H 25FFFFH
305	ER-01MB RAM4	ER-02RA+ (ER-01MB+ER-02RA×3)	1E0000H 27FFFFH
306	ER-02MB	ER-02RA+ER-02MB	1E0000H 2FFFFFH

## ② Functional description

The following check are performed for the optional RAM. Do not change.

Check Address	JOB300	JOB301	JOB302	JOB303	JOB304	JOB305	JOB306
1E0000H	○	○	○	○	○	○	○
1E0001H	○	○	○	○	○	○	○
1E0002H	○	○	○	○	○	○	○
1E0004H	○	○	○	○	○	○	○
1E0008H	○	○	○	○	○	○	○
1E0010H	○	○	○	○	○	○	○
1E0020H	○	○	○	○	○	○	○
1E0040H	○	○	○	○	○	○	○
1E0080H	○	○	○	○	○	○	○
1E0100H	○	○	○	○	○	○	○
1E0200H	○	○	○	○	○	○	○
1E0400H	○	○	○	○	○	○	○
1E0800H	○	○	○	○	○	○	○
1E1000H	○	○	○	○	○	○	○
1E2000H	○	○	○	○	○	○	○
1E4000H	○	○	○	○	○	○	○
1E8000H	—	○	○	○	○	○	○
1F0000H	—	○	○	○	○	○	○
200000H	—	—	○	○	○	○	○
210000H	—	—	○	○	○	○	○
220000H	—	—	—	○	○	○	○
240000H	—	—	—	—	○	○	○
260000H	—	—	—	—	—	○	○
280000H	—	—	—	—	—	—	○

"○" in the table shows that the check point address is valid, and  
"—" shows that it is invalid.

③ Check the following items.  
Check the termination print.

④ Test termination  
The test terminates after printing the termination printout.

Termination printout

Normal termination	30X
Abnormal termination	EY----- 30X *****

30X: JOB# (300~306)

Y: Error code

Note: When an error occurs error print is performed and the error address is displayed in position \*\*\*\*\* in hexadecimal.

**[18] Option ROM test**

① Key operation:

400 → **TL**

② Functional description:

A sum check is done for the option ROM (Address hex C80000H thru CBFFFFH.)

DOT DISPLAY : **OPT ROM**

③ Check the following items:

Check the termination printout.

④ Test termination:

The test terminates after printing the termination printout.

Termination printout

Normal termination	400
O-ROM	27020***** *****
E-----	400
O-ROM	27020***** *****

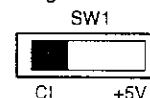
The underlined section must be the same as the standard ROM test specification. (Refer to JOB #130.)

**[19] RS-232 test**

The channel check of the scanner I/F RS-232 connector (D-sub, 9 pin) is performed.

Execute the following procedures with the power switch OFF.

- Set the I/F SW1 to the CI signal side.



- Connect the RS-232 loop back connector (UKOG-6705RCZZ).

## 1) Channel check

## ① Activation

The program is activated by JOB#500

SRV mode: 500 → **TL**

## ② Contents to be tested

Information about connected RS-232 channel is printed.

\* For RS-232 for the ER-A610 scanner, CH1 is used.

Printing

```

digit      21 20 19 18 17 16 15          3 2 1
|          | 1 1 1 1 1 1 0 |          | 5 0 0 |
|          | CH7 CH6 CH5 CH4 CH3 CH2 CH1 |          |
|          |          |          |          |
CHn = 0 : Presence of channel
      1 : Absence of channel
  
```

## ③ Confirmed content

Printed contents and the setting of channel changeover switch on PWB are compared and confirmed.

## ④ Release

The program is terminated after the above contents are printed.

## 2) RS-232 Channel 1 check

## ① Activation

The program is activated by JOB#501.

SRV mode: 501 → **TL** : Channel 1

## ② Contents to be tested

If the channel specified by JOB#CODE is not set, the machine performs the mis-operation processing. When the channel is set, the machine conducts the loop check concerning the channel specified by JOB#CODE by using the loopback connector.

The following three items are checked:

## ① Control signal check

## ② Data transfer check

## ③ Timer check (RS-232 onboard timer)

Check ① Control signal check ( $\overline{ERn} \cdot \overline{DRn} \cdot \overline{CIn}$ ,  $\overline{RSn} \cdot \overline{CDn} \cdot \overline{CSn}$  loop check)

OUTPUT		INPUT			
$\overline{ERn}$	$\overline{RSn}$	$\overline{DRn}$	$\overline{CIn}$	$\overline{CDn}$	$\overline{CSn}$
OFF	OFF	OFF	OFF	OFF	OFF
OFF	ON	OFF	OFF	ON	ON
ON	OFF	ON	ON	OFF	OFF
ON	ON	ON	ON	ON	ON

The read check about the above INPUT items and interrupt check of  $\overline{CS}$ ,  $\overline{CI}$  and  $\overline{CD}$  are performed.

Read check:  $\overline{ER}$  and  $\overline{RS}$  are switched over in the order as shown in the above table to confirm the logic of  $\overline{DR}$ ,  $\overline{CI}$ ,  $\overline{CD}$  and  $\overline{CS}$ . If the read logic is different from the one in the table, error print-outs occur.

Interrupt check: Allows the interruption of either of  $\overline{CS}$ ,  $\overline{CI}$  and  $\overline{CD}$  one by one. (The mask is released.)  
The interruption does not take place when each signal is turned on. Or if the interruption occurs when a signal is turned off, error print-outs occur.

Each of the above checks should be made in four cycles.

Note)  $\overline{ERn}$  control selector jumper switch on the I/F board must be switched to the software control side.

Check ② Data transfer check ( $\overline{SDn} \cdot \overline{RDn}$  loop check)

In this check, transfer 256-byte loopback data of \$00 ~ \$FF.

Note) The above check should be made with the baud rate set at 9600BPS.

## Check ③ Timer check

Before making check ②, set the corresponding timer a 10ms for RCVDI activation, and check to see that:

- 1)  $\overline{TRQ1}$  is not generated during the execution of check ②.
- 2)  $\overline{TRQ1}$  is generated in 10msec. after check ② is finished.

## ③ Contents to be checked

If an error occurs during the above checks, following error print-outs occur. Even if an error occurs during check ①, the test is continued after the corresponding error print-out has occurred, but if an error occurs during the execution of check ② or ③, the test is terminated after the corresponding error print-out has occurred.

Note that when check ①, ② or ③ terminates, the termination print-out occurs irrespective of any errors that have occurred during the check. (The program terminates normally only when no error print-out has occurred.)

ERROR	ERROR PRINT	Contents
1	E1-ER DR	$\overline{ERn} \cdot \overline{DRn}$ ERR
2	E2-ER CI	$\overline{ERn} \cdot \overline{CIn}$ ERR
3	E3-RS CD	$\overline{RSn} \cdot \overline{CDn}$ ERR
4	E4-RS CS	$\overline{RSn} \cdot \overline{CSn}$ ERR
5	E5-CI INT	Interruption error of $\overline{CIn}$
6	E6-CD INT	Interruption error of $\overline{CDn}$
7	E7-CS INT	Interruption error of $\overline{CSn}$
8	E8-TXEMP	TXEMPn error
9	E9-TXEMP I	Interruption error of TXEMPn
10	E10-TXRDY	TXRDYn error
11	E11-TXRDY I	Interruption error of TXRDYn
12	E12-RCVRDY	RCVRDYn error (Reception is impossible. $\overline{TRQ1}$ has occurred during execution of check ②.)
13	E13-RCVRDY I	Interruption error of RCVRDY
14	E14-SD RD	$\overline{SDn} \cdot \overline{RDn}$ ERR (Data error)
15	E15-SD RD	$\overline{SDn} \cdot \overline{RDn}$ ERR (Data error, Flaming error)
16	E16-TIMER	TIMERn error ( $\overline{TMQRn}$ cannot be set after termination of check ②.)
17	E17-TIMER I	Interruption error of $\overline{TRQ1}$

Errors that may occur during check ① (control signal check): E1 ~ E7  
Errors that may occur during check ② (data transfer check): E8 ~ E15

Errors that may occur during check ③ (timer check): E12, E16 and E17

## ④ Cancellation

The program automatically terminates when a check is finished.

Termination print-out:

501

## CHAPTER 6. DOWN LOAD FUNCTION

### 1. General

RAM data can be transmitted in the following two methods.  
Save the data before servicing as follows:

#### ① ECR $\longleftrightarrow$ ECR

- Cable: ER-A5CB

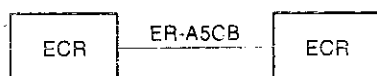


Fig. 1-1

#### ② ECR $\longleftrightarrow$ ER-02FD

- Cable: Cable (QCNW-7578RCZZ) packed with the ER-02FD

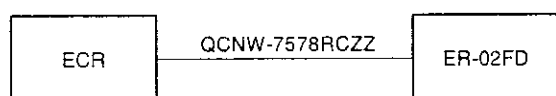


Fig. 1-2

### 2. SIO interface specification

- 1) Operation: Simplex
- 2) Line configuration: Direct connect
- 3) Data rate: 19200, 9600, 4800, 2400, 1200, 600, 300BPS (Selected by SRV JOB#903-A)
- 4) Sync mode: Asynchronous
- 5) Checking: Vertical parity (odd)
- 6) Code: 7 bits (ASCII)
- 7) Bit sequence: LSB first
- 8) Line level: TTL level
- 9) Data forma:

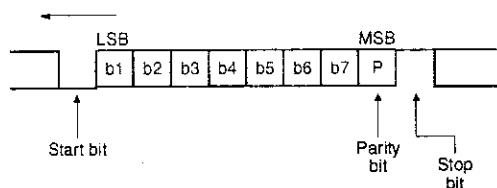


Fig. 2-1

### 3. Location of connector pins

#### ① ER-A5CB

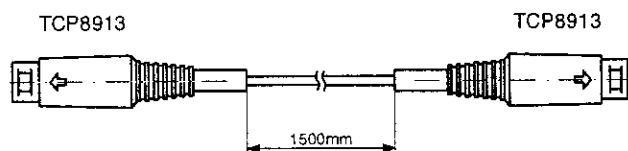


Fig. 3-1

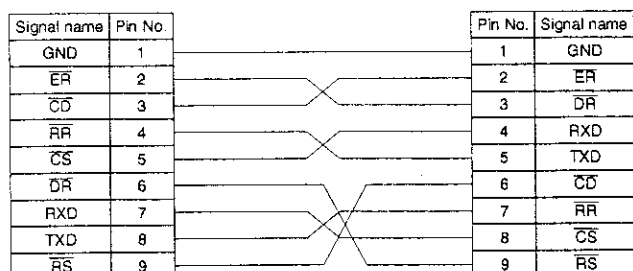


Fig. 3-2

#### ② QCNW-7578RCZZ

TCP8913

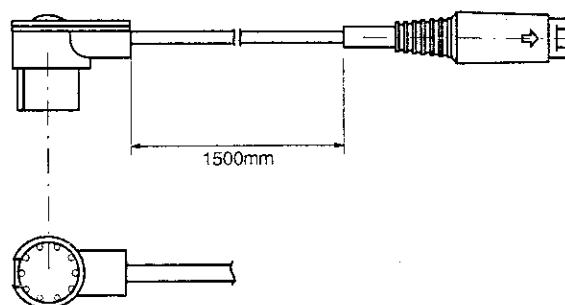


Fig. 3-3

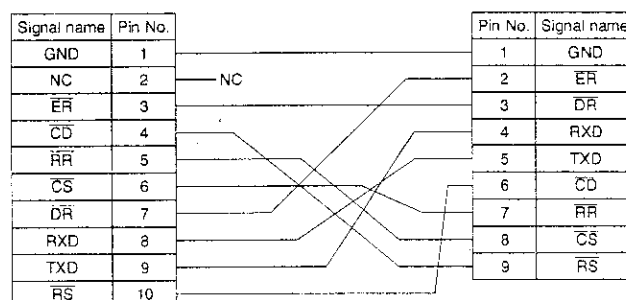


Fig. 3-4

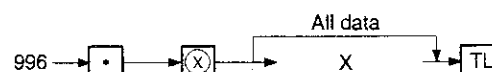
#### Interfacing signals

Pin No.	Signal name	In/Out	On level	Description
1	GND	—	—	Signal ground
2	ER	Out	Low	Equipment ready
3	DR	In	Low	Data set ready
4	RXD	In	High: MARK Low: SPACE	Receive data
5	TXD	Out	High: MARK Low: SPACE	Transmit data
6	CD	In	Low	Carrier detect
7	RR	Out	Low	Ready to receive
8	CS	In	Low	Clear to send
9	RS	Out	Low	Request to send

### 4. Application specification

The following service (SRV) modes are available for the serial data transfer of the ER-A610.

#### 1) Data transmit (Source side)



X: 0=SSP DATA

1 = Standard RAM+01RA/02RA

2 = 01MB (0.5MB)/02MB (0.5MB: 1st half)

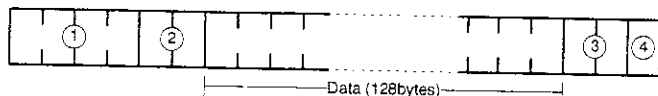
3 = 02MB (0.5MB: 2nd half)

#### 2) Data receive (Target)



## 5. Data format

A single byte image of the RAM data to be transmitted is divided into a high order 4 bits and low order 4 bits and converted into ASCII code. Then, the image of the memory is sent in the following format:



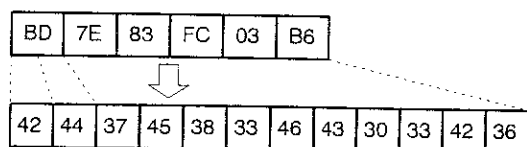
- ① Memory top address: 0000H ~ FFFFH  
Top address of the memory to be transmitted in ASCII number.
- ② Page: 1D ~ 1F  
Page of the memory to be transmitted in ASCII number.
- ③ Sum check
- ④ End code:  
Hex 0D

### NOTE:

- In order that contents of RAM memory may not over-ride pages for this job, RAM image is sent in unit of 64 bytes from the address 0000. In other words, 128 bytes are sent at one time on the transmit data format.

### RAM DATA FORMAT

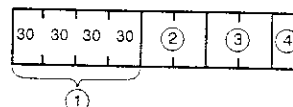
Exhibit:



Code table

HEX	ASCII	Character
0	30	0
1	31	1
2	32	2
3	33	3
4	34	4
5	35	5
6	36	6
7	37	7
8	38	8
9	39	9
A	41	A
B	42	B
C	43	C
D	44	D
E	45	E
F	46	F

## 6. END record



- ① End message:  
Fixed to 30303030.
- ② End message:  
Fixed to 4646.
- ③ Sum check
- ④ End code:  
CR (0D)

## 7. Operational method

- To prepare an ER-A610 to receive data from another ER-A610 or the ER-02FD, the memory size of the receiving unit must be the same as or greater than the sending unit.
- Master reset the receiving ER-A610.
- Match the baud rate of the transmitter with the receiver using JOB#995 in the SRV mode.
- Connect loader cable (QCNW-7578RCZZ or ER-A5CB) between ER-A610s.
- Set the receiving ER-A610 ready to receive.



- Start the sending ER-A650.



- X: 0 = SSP  
 1 = Standard RAM+01RA/02RA  
 2 = 01MB (0.5MB)/02MB (0.5MB:1st half)  
 3 = 02MB (0.5MB: 2nd half)

- Transmission status.  
Description of error status
  - 1: Application error (Command error)
  - 2: Line error (DTR OFF)
  - 3: Application error (Parity error)
  - 4: Application error (Check sum error)
  - 5: Application error (Data size error)
  - 6: Hard ware error
  - 7: Power off error
  - 10: Time out error
  - 11: Application error (Transmit data size error)
  - 12: Application error (Block sequence error)
  - 13: Memory full error
- Service reset the receiving ER-A610.

## 8. Saving/Loading of data to/From the FD unit Configuration

- 1) Turn off the power switch of the ER-02FD, and set the DIP switches of the FD unit as follows:

**ER-02FD (The ER-01FD functions of the ER-02FD are used.)**

DS-1								DS-2			
1	2	3	4	5	6	7	8	1	2	3	4
OFF	ON	OFF	ON	ON	OFF	OFF	OFF	X	OFF	OFF	OFF

Data rate

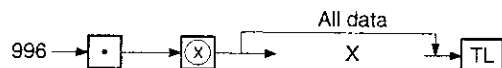
4	6	Rate [bps]
OFF	OFF	19200
ON	OFF	9600
OFF	ON	4800
ON	ON	2400

Disk format  
CCP/M: OFF  
PC-DOS: ON

- 2) Connect the QCNW-7578RCZZ cable.

### Saving data

- 1) Turn on the power switch and insert a floppy disk which has been formatted.
- 2) Start the SEND JOB on the ECR side as follows:



X: 0 = SSP

1 = Standard RAM+01RA/02RA

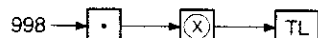
2 = 01MB (0.5MB)/02MB (0.5MB:1st half)

3 = 02MB (0.5MB: 2nd half)

- 3) Data transmission is started and the green lamp on the ER-02FD blinks.

### Loading data

- 1) Turn on the power switch and insert the floppy disk which stores the data.
- 2) Start the RECEIVE JOB on the ECR side as follows:



- 3) Press the [SEND] key on the FD unit.
- 4) Data transmission is started and the Green lamp on the ER-02FD blinks.
- 5) Service reset the ECR.

## CHAPTER 7. SERVICE PRECAUTION

### 1. Hints and tips when installing the RAM chip option (ER-02RA)

- 1) When the RAM option (ER-02RA) is to be installed to the main PWB, be sure that the ER-02RA is facing in the right direction.

### 2. Printer motor lock

In the ER-A610, the motor will automatically turn off when a premature halting of the timing signals occurs due to a paper misfeed, ribbon jam, intrusion of alien object, etc. When the motor stops, an intermittent beeping will occur, with no indication in the display.

#### <How to reset the motor lock>: R/J printer

- 1) Disconnect the AC cord from the wall outlet. And remove the cause.
- 2) When power is restored, the following is displayed.

PRINTER ERROR

Fig. 2-1

- 3) Depress the [CL] key to return the ER-A650 to the point where the cause happened. The power failure symbols will be printed after a line feed.
- 4) Print sample

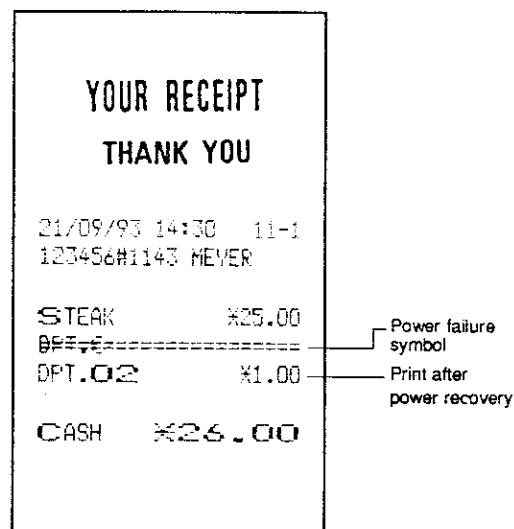


Fig. 2-2

### 3. Note for upper cabinet installation

When installing the upper cabinet again, be sure to connect the GND wire (QCNW-7120RCZZ) to the proper connector in front of the printer.

## 4. Others

- 1) If D1 shorts, the VRAM is shorted with the 5V supply. In this event, normal operation is usually possible, except that it may not recharge the battery, failing to back it up, resulting in memory frustration.

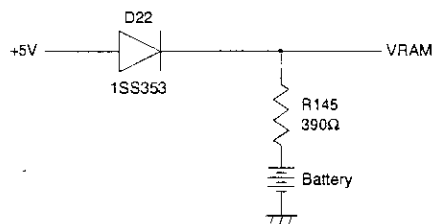


Fig. 4-1

- 2) When installing the option I/F PWB, be sure to connect it to the left side (under the power PWB) when viewed from the rear of the body. Do not use the right side (under the printer).
- 3) When fuse F1 above the main PWB is blown off, be sure to check the zenor diode ZD2 (VHERD5.6FP3-1) and the thyristor Q2 (VHSDRA2TE//1) for any damage as well as replace F1. If the diode is damaged, replace it with new one.
- 4) When removing or installing the option slot rear cover, be sure to lift up the pop-up display. Especially when installing the cover, be sure not to pinch the pop-up display cable between the upper cabinet and the cover.

## 5. Printer printing speed adjustment

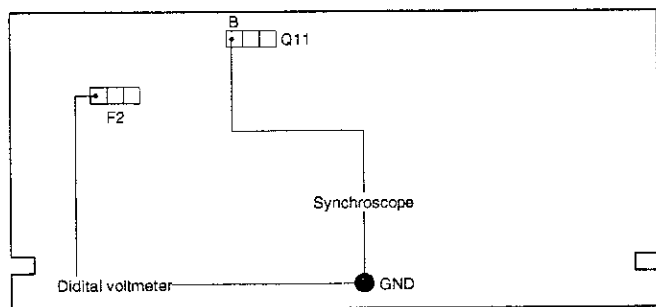
When the printer unit or the power PWB is replaced, the following adjustments should be performed.

- 1) Tools required for adjustment

- ① A synchroscope or a universal counter
- ② A digital voltmeter

- 2) Adjustment procedure

- ① Remove fuse F2 from the main PWB.
- ② Connect the probe of the synchroscope or the digital voltmeter with 1 pin and GND of Q11 (KTD1414) on the main PWB.
- ③ Connect the digital voltmeter pin with fuse F2 and GND of the main PWB.

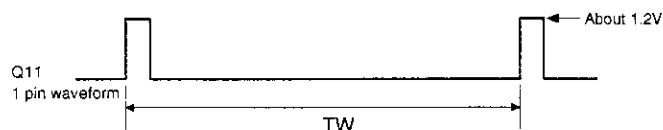


- ④ Perform the master reset.
  - ⑤ Turn VR1 on the PS PWB to adjust the voltage to 26.4V (Approx. 2.7 lines/sec).
- × Adjust VP so that it is in the range of 24V to 26.4V.

- ⑥ Perform the printing procedure. (Printing is not performed because the fuse is removed.)



- ⑦ Measure the time of TW with the waveform of Q11 1 pin as shown in the figure below.

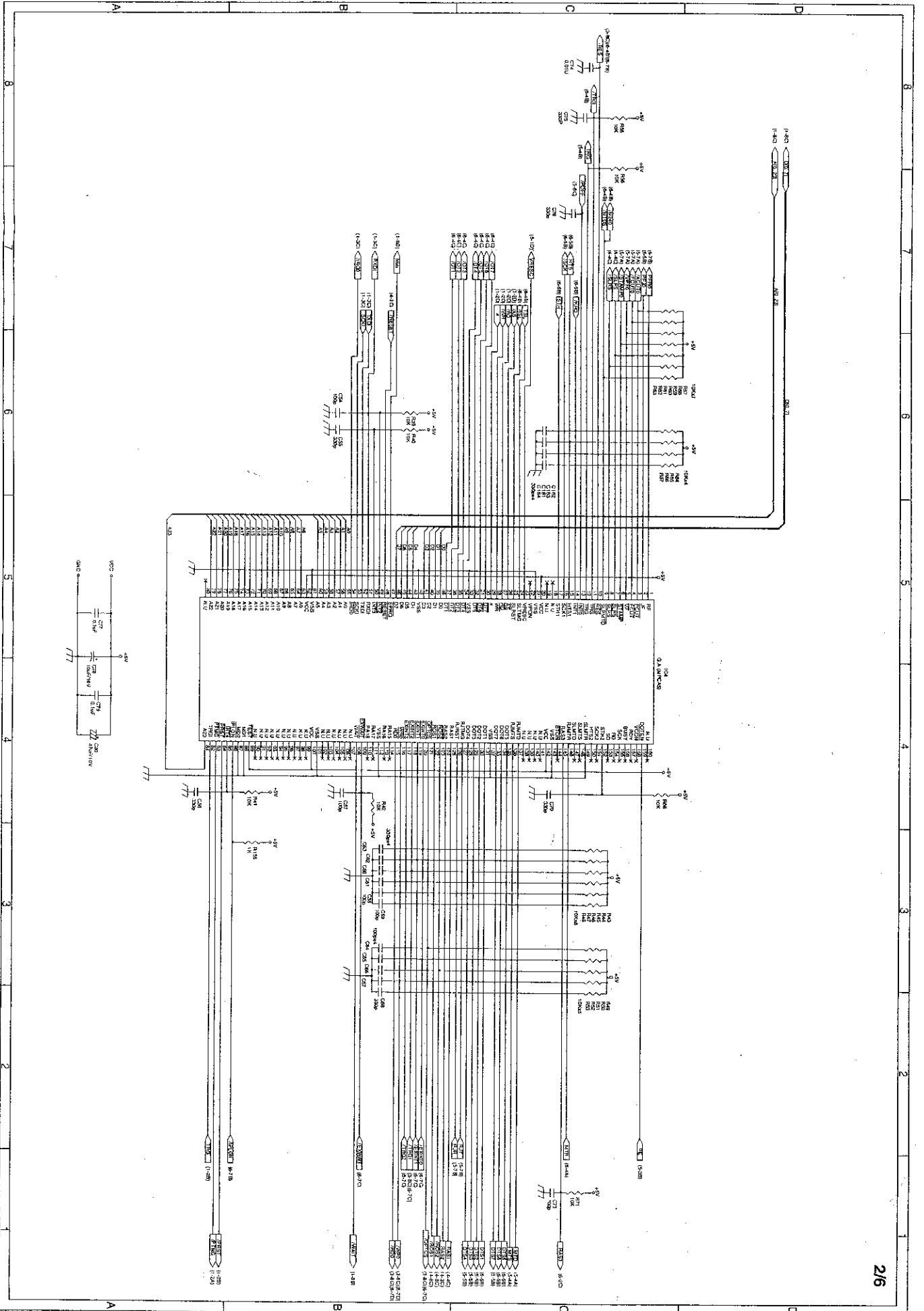


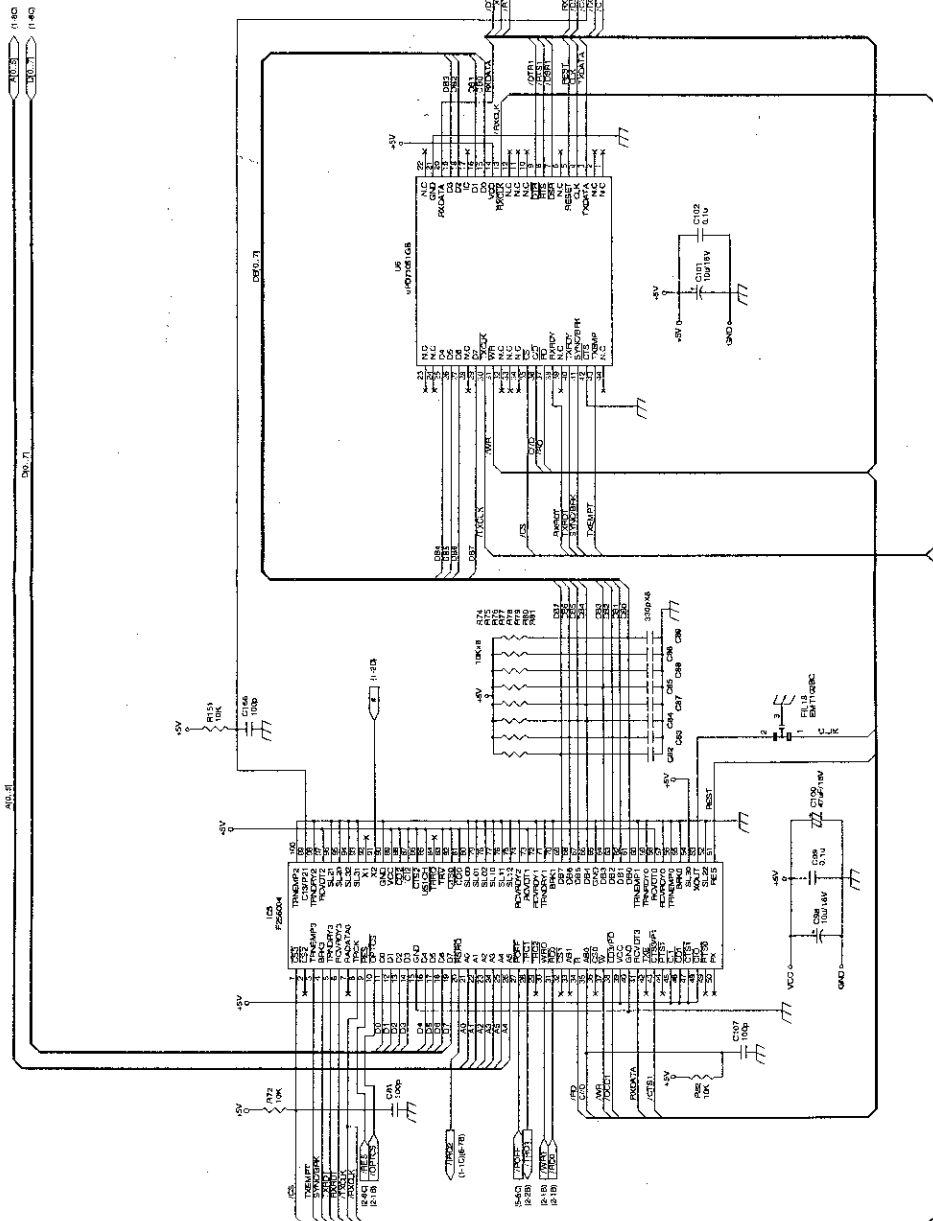
- ⑧ TW  $\geq$  357 ms: The adjustment is completed.  
TW < 357 ms: Adjust VR1 on the PS PWB so that TW may be 357 ms  $\pm$  5 ms.
- ⑨ Turn off the power and disconnect the probe.
- ⑩ Attach the fuse to the original position.

## 6. For the adjustment of printer dot pulse, refer to CHAPTER 5. TEST FUNCTION, Test No. 150.

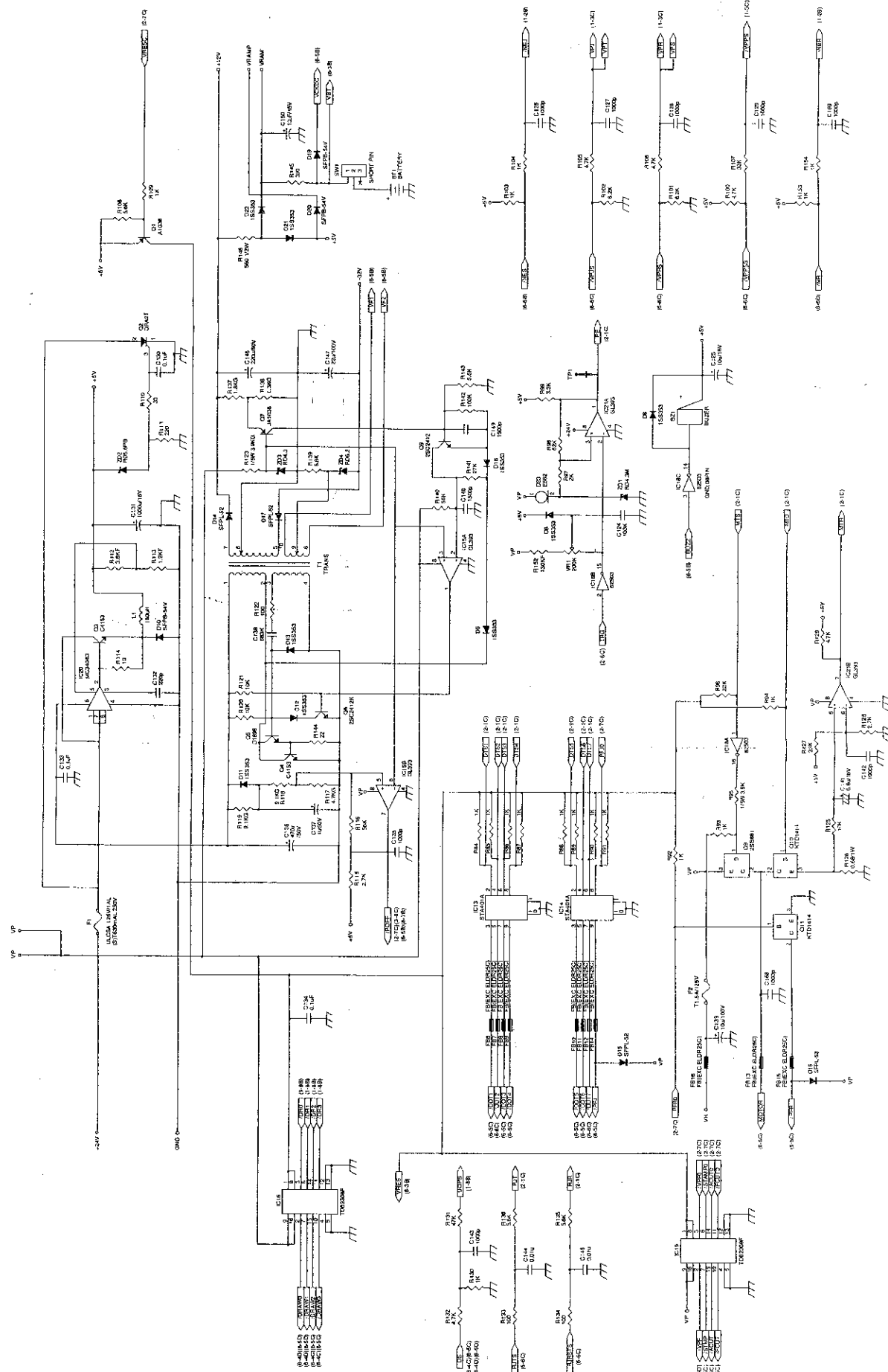


## 1. Main PWB circuit diagram

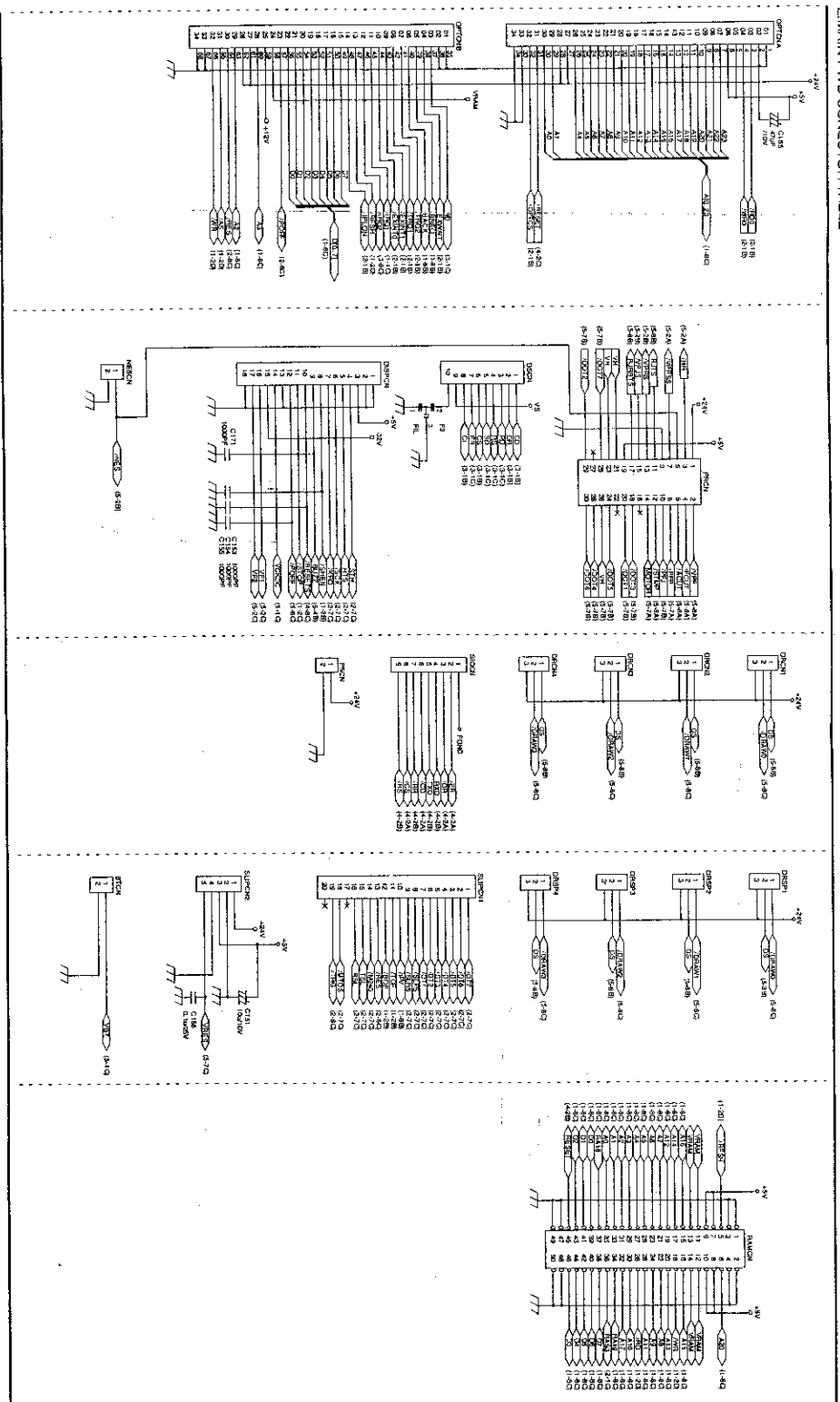




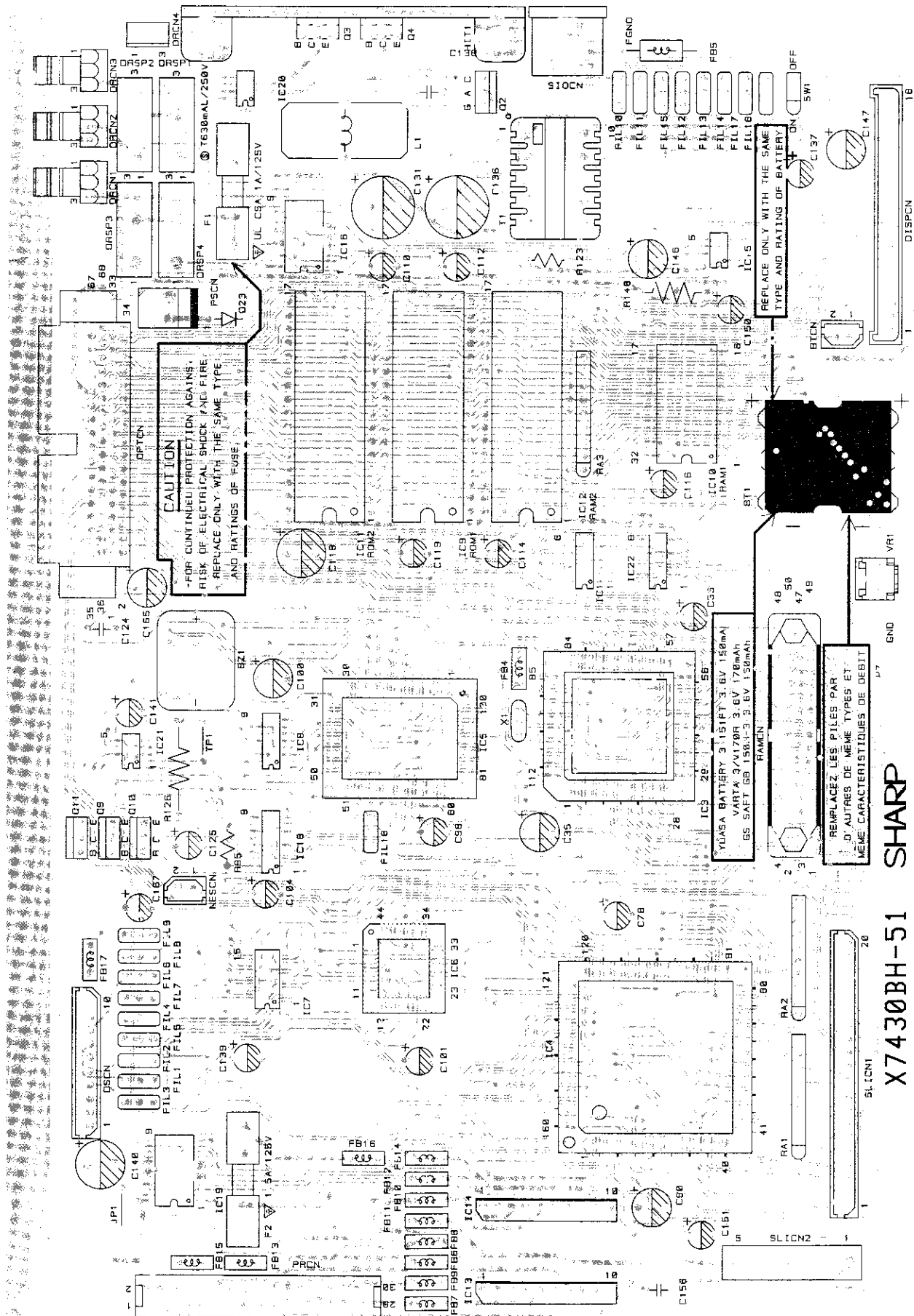




2. MAIN PWB CONNECTOR TABLE



## 2. Main PWB layout (Parts side)



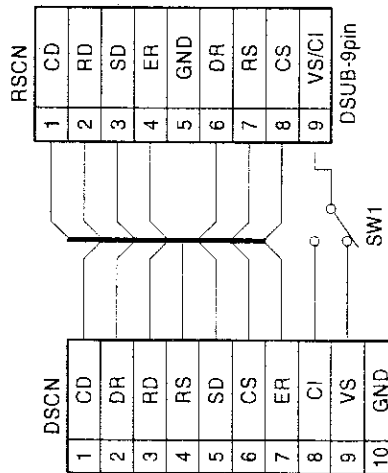
# SHARP

X7430BH-51

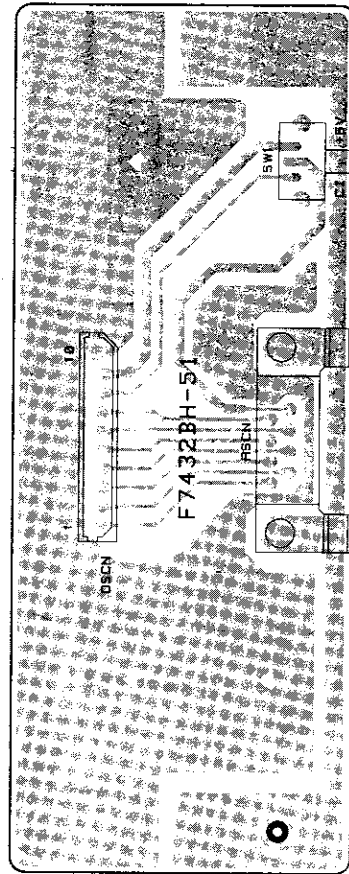




4. RS232 I/F PWB circuit diagram

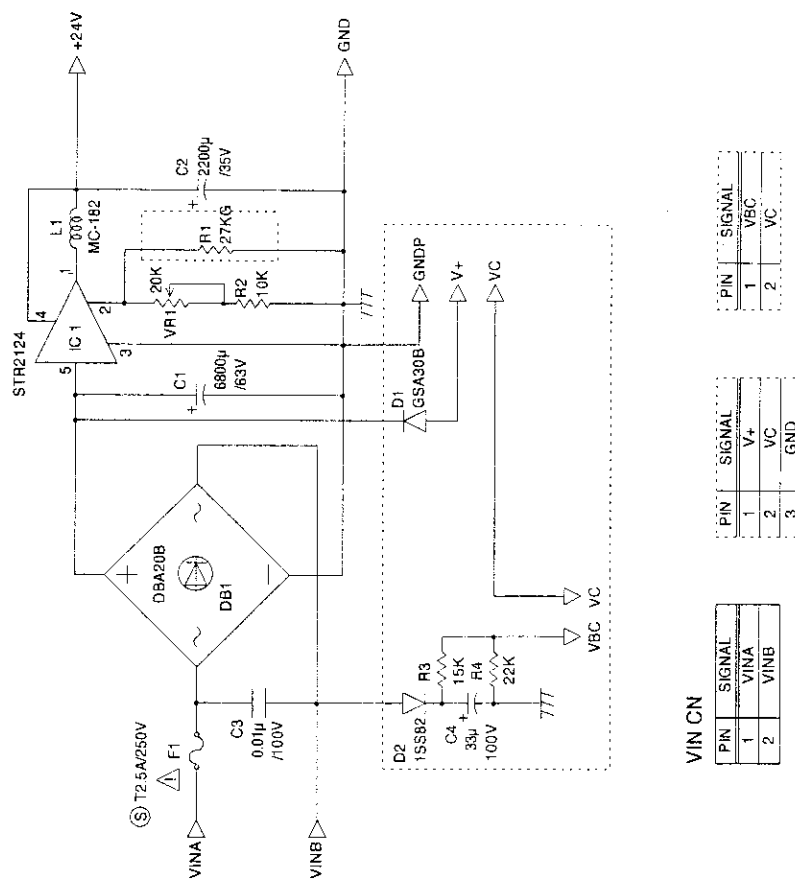


5. RS232C I/F PWB layout

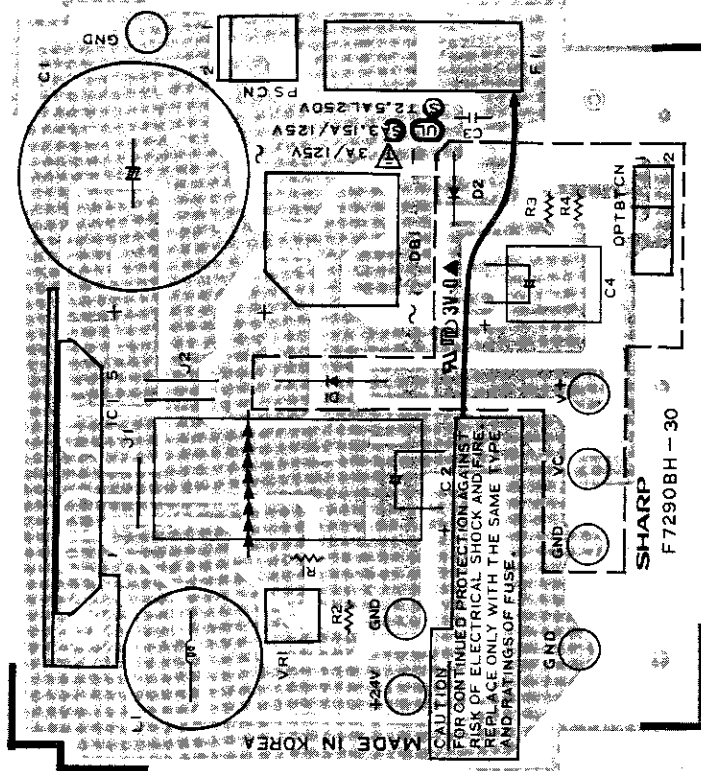


120/ERA 610(S20-031-6B)XCOMPX95(D.5)REN21

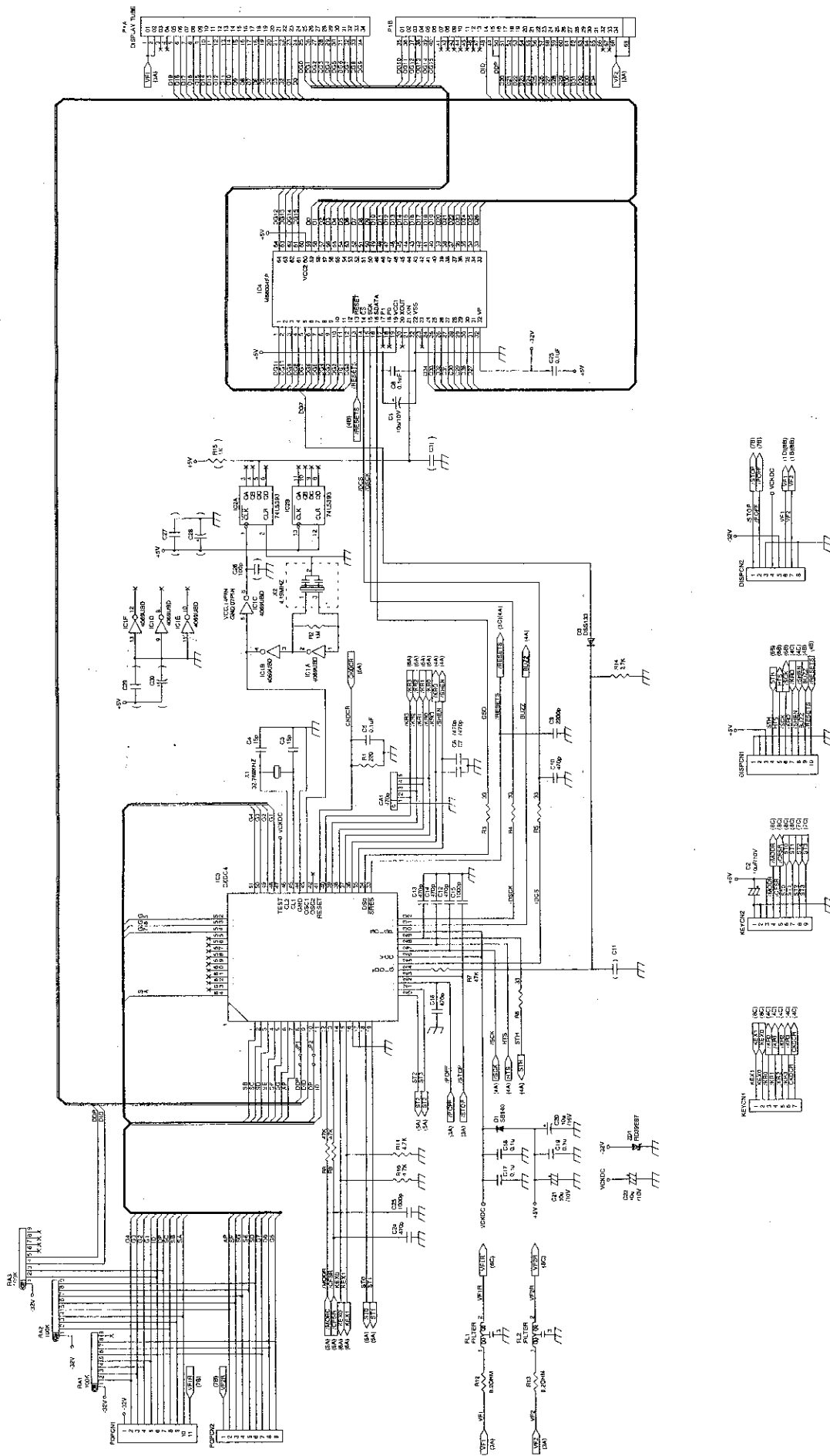
## 6. Power supply PWB circuit diagram



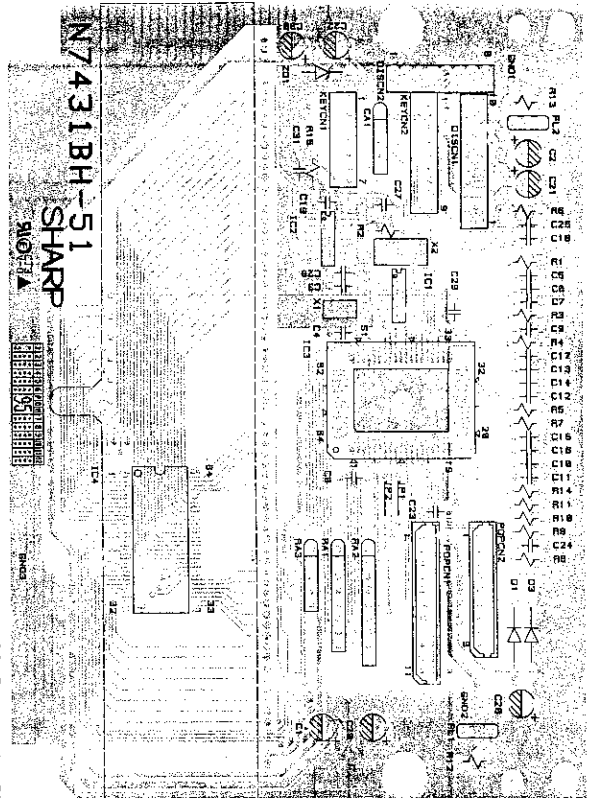
## 7. Power supply PWB layout



8. Display PWB circuit diagram

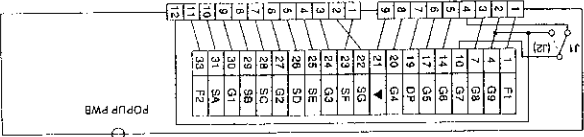


## 9. Display PWB layout

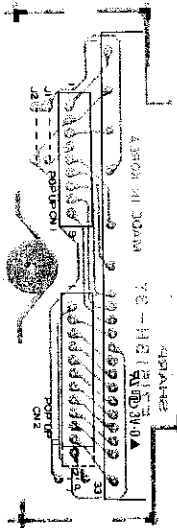


SHARP / DISPLAY-2 (D20-062-SC) / COMP / 7dn/95.1

## 10. Pop-up display PWB circuit diagram



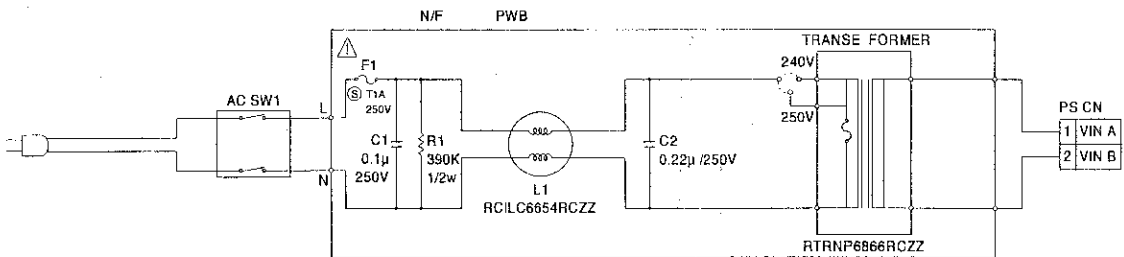
## 11. Pop-up display PWB layout



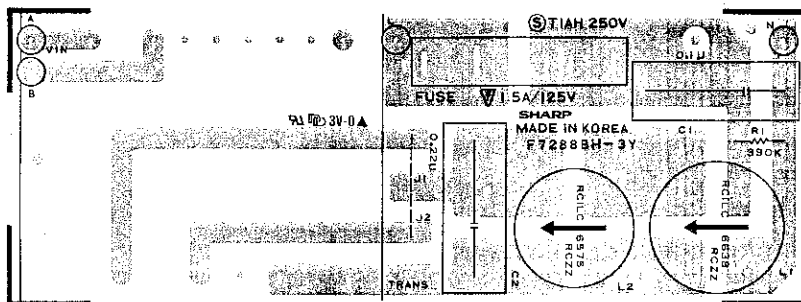
## 12. Noise filter PWB circuit diagram

NOISE FILTER PWB TYPE (F7288RC)

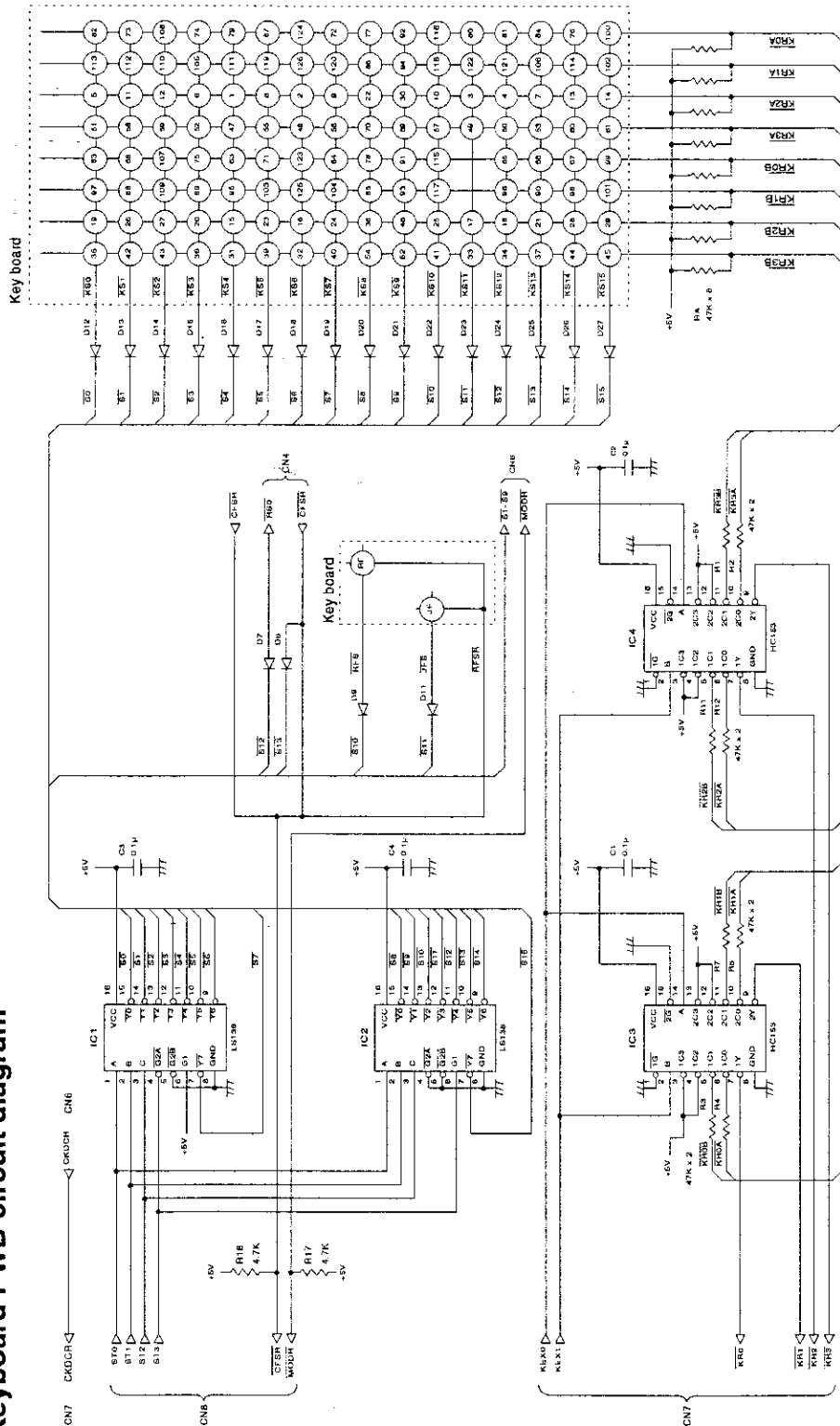
N/F TRANSE PWB UNIT



## 13. Noise filter PWB layout



# 14. Keyboard PWB circuit diagram



## 15. Keyboard position code table

↑ RECEIPT	↑ JOURNAL	22	30	38	46	54	62	70	78	86	94	102	110	118	126
7	14	21	29	37	45	53	61	69	77	85	93	101	109	117	125
6	13	20	28	36	44	52	60	68	76	84	92	100	108	116	124
5	12	19	27	35	43	51	59	67	75	83	91	99	107	115	123
4	11	18	26	34	42	50	58	66	74	82	90	98	106	114	122
3	10	17	25	33	41	49	57	65	73	81	89	97	105	113	121
2	9	16	24	32	40	48	56	64	72	80	88	96	104	112	120
1	8	15	23	31	39	47	55	63	71	79	87	95	103	111	119

# SHARP PARTS GUIDE

## MODEL ER-A610

PRINTER: M-820

For TQ, TR, TS, KA, KB

### CONTENTS

- |   |                                |    |   |
|---|--------------------------------|----|---|
| 1 | Top cabinet etc.               | 8  | Noise filter PWB unit                   |
| 2 | Bottom cabinet etc.            | 9  | Pop-up PWB unit                         |
| 3 | Drawer box unit(SK460type)     | 10 | RS232C i/F PWB unit                     |
| 4 | Packing material & Accessories | 11 | Articles for consumptions               |
| 5 | Main PWB unit                  | 12 | Special service tools & service options |
| 6 | Display PWB unit               | 13 | AC cord                                 |
| 7 | Power supply PWB unit          | ■  | Index                                   |

Because parts marked with "△" is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

Table of destinations

SELECTION CODE	COUNTRIES
U	U. S. A., Guam
A	Canada
TS	Germany
TQ	SEEG territory other than Germany (Stamp : English)
TR	SEEG territory other than Germany (Stamp : Spanish)
KB	U. Kingdom
KA	Australia

SELECTION CODE	COUNTRIES
K	Korea

SELECTION CODE	COUNTRIES
SB	Saudi Arabia (127V area)
SBA	Saudi Arabia (220V area)
SC	Taiwan
SD	Venezuela
SE	Hong Kong
SG	Lebanon, Syria, Greece, Pakistan, Iran, Egypt, Thailand, Iraq, Mauritius, Seychelles, Tahiti, Jordan, Sudan, Turkey
SH	South Africa (U. S. A. version)
SHE	South Africa (Europe version)
SJ	Philippines (Europe version)
SJ2	philippines (U. S. A. version)
SM	Kuwait, Qatar, Oman, UAE, Malta,Bahrain
SMT	Nigeria, Yemen, Kenya

SELECTION CODE	COUNTRIES
RA1	Morocco, Algeria, Tunisia, West Africa
RA2	Chile, Uruguay, Peru, Argentina, Paraguay
RA5	Sri Lanka

SELECTION CODE	COUNTRIES
RB3	Indonesia
RB4	
RB5	Cyprus
RB6	Panama
RB7	Barbados
RB8	Malaysia (U. S. A. version)

SELECTION CODE	COUNTRIES
RC1	Malaysia (Europe version)
RC2	Singapore
RC5	Dominican Republic, Ecuador

## ERA610

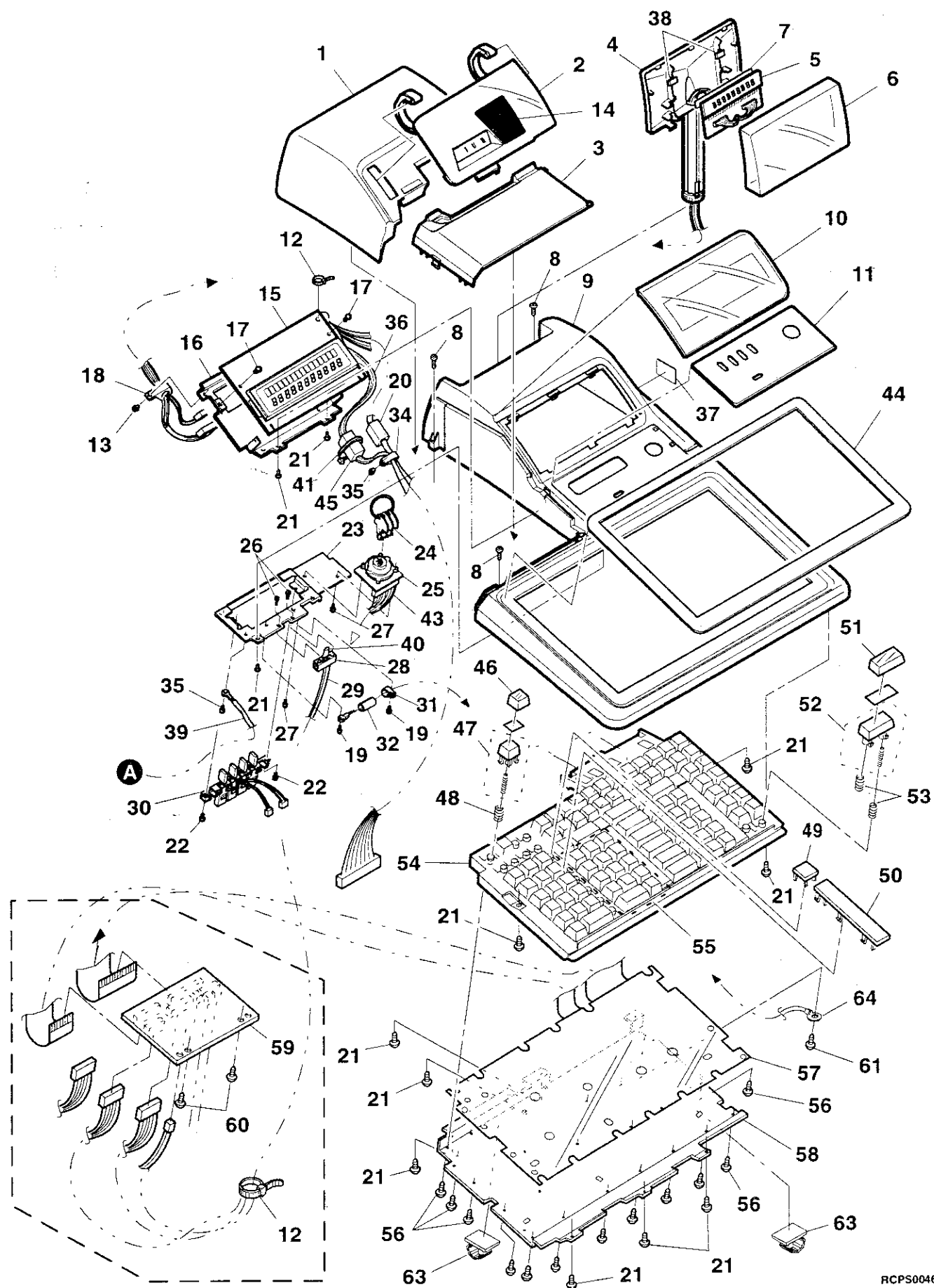
## 1 Top cabinet etc.

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	GC0VA7038RCZA	AQ		D	Printer cover
2	PFI LW6925RCZZ	AK		D	Journal filter
3	GC0VA7039RCSA	AM		D	Ribbon cover
4	GCAB-7143RCZZ	AH		D	Pop-up cabinet
5	CPWBF7136BH01	BL		E	Pop up PWB unit
6	PFI LW6923BHSH	AR	N	D	Pop up filter
7	PSPAG6729BHZZ	AD	N	C	Display spacer
8	XBBSC30P06000	AA		C	Screw (3×6)
9	GCABB7141RCSA	AY		D	Top cabinet
10	PFI LW6924BHSJ	AQ	N	D	Display filter
11	HPNLC6818BHSO	AP	N	D	Deco panel
12	LBNDJ2003SCZZ	AA		C	Band,wire (Large)(80mm)
13	XHBSD30P06000	AA		C	Screw (3×6)
14	PFI LW6926RCZZ	AD		D	Clear filter
15	CPWBN7431BH01	CA	N	E	Display PWB unit
16	LANGT7505RCZZ	AM		C	Display PWB angle
17	LX-BZ6782BHZZ	AA		C	Screw (3×8KS)
18	RCORF6683RCZZ	AM		C	Core (TFCK16-8-13)
19	XHBSD30P08000	AA		C	Screw (3×8)
20	RCORF1016LCZZ	AL		C	Core (SFC-5)
21	XEBSD30P06000	AA		C	Screw (3×6)
22	XBPSD30P06K00	AA		C	Screw (3×6K)
23	LANGT7465RCZZ	AK		C	Switch angle
24	LKGI M7110RCZZ	AG		B	Master key (MA)
	LKGI M7111RCZZ	AG		B	Operator key (OP)
	LKGI M7129RCZZ	AE		B	Sub master key (SM)
	LKGI W7256RCZZ	AP		B	Mode key switch (Body)
25	XBPSD26P04K00	AA		C	Screw (M2.6×4)
26	XUPSD23P08000	AA		C	Screw (2.3×8)
27	QSW-S6850BHZZ	AM	N	B	Slide switch
28	QCNW-7434RCZZ	AC		C	Harness (2pin)
29	CSW-P6875RC01	AW		B	Stay down switch unit
30	LHLDW0024SCZZ	AA		C	Wire holder (HP-2N)
31	RCORF6684RCZZ	AG		C	Core (TR-16-8-16M)
32	LBNDJ0005FCZZ	AB		C	Clamp (6N)
33	XEBSD30P08000	AA		C	Screw (3×8)
34	QCNW-7615RCZZ	AT		C	Display cable
35	TCAUS6677BHZZ	AD		D	Caution label
36	PHOG-1060CCZZ	AA		C	Display cushion
37	QCNW-7120RCZZ	AE		C	Earth wire (Keyboard+Printer angle)
38	JKNBZ6882BHZZ	AE		C	SL-SW knob
39	LBNDJ2004BHZZ	AB		C	Nylon band (140mm)
40	QCNW-7722BHZZ	BA	N	C	Mode SW cable
41	HPNLC6817RCSA	AS	N	D	Normal key panel
42	RCORF6662RCZZ	AK		C	Core (SFC-6)
43	0EMKT80020001	AC		C	Key cap (1×1) (TKT8002-00-002)
44	0EMWK46466510	AC		C	Key top (1×1) (TWK4646-65-010)
45	0EMWK45531120	AC		C	Spring (1×1) (TWK4553-11-020)
46	0EMWK45001410	AD		C	Dummy cover (1×1) (TWK4500-14-010)
47	0EMWK45001510	AE		C	Dummy cover (1×5) (TWK4500-15-010)
48	0EMKT80220001	AE		C	Key cap (1×2) (TKT8022-00-002)
49	0EMWK46466610	AE		C	Key top (1×2) (TWK4646-66-010)
50	0EMWK45531220	AC		C	Spring (TWK4553-12-020)
51	0EMWK46690210	AW		C	Housing (TWK4669-02-010)
52	0EMWK46476810	BC		C	Key top ass'y (TWK4647-680010)
53	0EMKE31133061	AA		C	Screw (M3×6)(TKE3113-30-060)
54	0EMWK46696010	BA		C	Pattern sheet ass'y (TWK4669-60-010)
55	0EMWK46690510	AX		C	Plate (TWK4669-05-010)
56	0EMWK46696310	BG		E	Key PWB ass'y (TWK4669-63-0010)
57	0EMKE25122061	AA		C	Screw (M2×6)(HKE2512-20-0601)
58	XBPSD30P06KS0	AA		C	Screw (3×6KS)
59	LHLDW6820BHZZ	AE		C	Quick clamp (Large)
60	QCNW-7000RC20	AD		C	Lead wire
101	TLABH6994BHZZ	AT	N	D	Key label (TWK4732-020010)
501	DUNTK4871BHZZ	BZ	N	E	Keyboard (Normal)

(Include No.46~60,101)



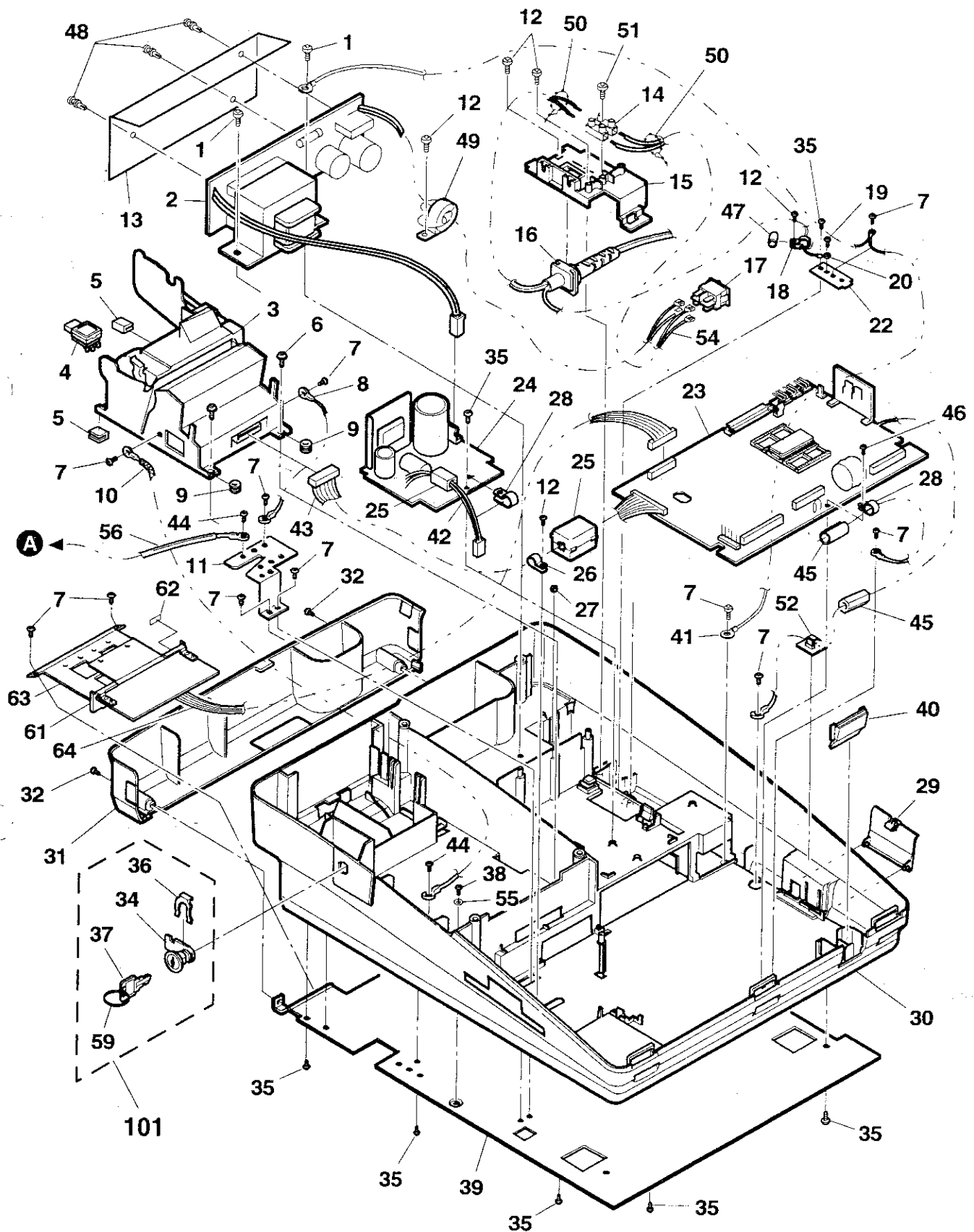
1 Top cabinet etc.



## 2 Bottom cabinet etc.

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	XUBSD40P08000	AA		C	Screw (4×8)
2	CPWBF7288BH09	BN	N	E	Noise filter PWB unit [KA,KB]
3	CPWBF7288BH10	BN	N	E	Noise filter PWB unit [TQ,TR,TS]
4	KI-086754RCZZ	CB		E	Printer (M-820)
5	PSTM-6782RCZZ	AS		C	Stamp
6	PSTM-6780RC01	AR		C	Stamp [TR]
7	PSTM-6785RC01	AS		C	Stamp [KA,KB,TQ]
8	PGUMM6699RCZZ	AB		C	Stamp [TS]
9	XJPSP30P12X00	AB		C	Printer cushion
10	XHPSP30P06K00	AA		C	Screw (3×12X)
11	QCNCW-7125RCZZ	AD		C	Screw (M3×6K)
12	PCUSG1220BHZZ	AE		C	GND wire 3
13	QCNCW-7122RCZZ	AD		C	Printer cushion
14	LANGQ7476RCZA	AF		C	GND wire
15	XEBSD30P08000	AA		C	Printer earth angle
16	PSHEP6789BHZZ	AP		C	Screw (3×8)
17	QTANN6629RCZZ	AF		C	Sheet
18	LHLDK6813RCSA	AE		C	Block terminal (TYP500)
19	QACCE3120QCN5	AL		B	PS holder
20	QACCL7421QCN1	AW		B	AC cord (250V 2.5A) [TQ,TR,TS]
21	QCNCW-7212RCZZ	AH		B	AC cord [KA]
22	QPLGA0006QCZZ	AQ		C	BS ordinary cable [KB]
23	QSW-C9212QCZZ	AH		B	Plug (3A 250V) [KB]
24	LHLDW0007SCZZ	AA		C	Seesaw switch
25	XBPBZ40P08K00	AA		C	Wire holder (HP-7N)
26	QTANP0004BHZA	AE	N	C	Screw (M4×8) [KA,KB]
27	LANGQ7472RCZA	AE		C	Earth terminal (GP20076) [KA,KB]
28	CPWBX7430BH01	CP	N	E	Main GND angle [KA,KB]
29	CPWBF7290BH05	BM		E	Main PWB unit (Include No.43)
30	RCORF6666RCZZ	AM		C	Power supply PWB unit (Include No.42)
31	LHLDW0008SCZZ	AA		C	Core (SFC-8)
32	XNESD30-24000	AA		C	Cable holder (HP-5N)
33	LHLDW0024SCZZ	AA		C	Nut (3mm)
34	GFTAS6769RCSA	AC		D	Wire holder (HP-2N)
35	GCABA7142RCAB	BD		D	SIO connector lid
36	GC0VA7040RCSA	AQ		D	Bottom cabinet
37	XBBSC30P20000	AA		C	Rear cover
38	LKGIW7355BHZA	AV		B	Screw (3×20)
39	XEBSD30P06000	AA		C	Lock key (Body)
40	MSPRK6730BHZZ	AC		C	Screw (3×6)
41	LKGIW7356BHZZ	AK		B	Lock spring
42	XHPSP40P08KS0	AA		C	Printer cover lock key
43	LCHSM6692RCZA	AW		C	Screw (4×8KS)
44	GFTAF6770RCSA	AC		D	Main chassis
45	QCNCW-7590RCZZ	AC		C	Clerk key lid
46	QCNCW-7592RCZZ	AD		C	GND wire [TQ,TR,TS]
47	QCNCW-7575RCZZ	AE		C	GND wire [KA,KB]
48	QCNCW-7518RCZZ	AR		C	PS cable (2pin)
49	XBPSP30P06KS0	AA		C	Printer cable
50	RCORF6661RCZZ	AK		C	Screw (M3×6KS)
51	XJBSP30P10000	AA		C	Core (SFC-4)
52	RCORF6682RCZZ	AE		C	Screw (M3×10)
53	LX-LZ5001CHZZ	AC		C	Core [KA,KB]
54	RCORF7001SCZZ	AL		C	Bushing
55	LBNDJ2003SCZZ	AA		C	Core (ESD-R-25DR)
56	XUPSP30P16000	AA		C	Band wire (Large)(80mm)
57	LHLDW6821BHZZ	AD		C	Screw (M3×16)
58	QCNCW-7591RCZZ	AE		C	Clamp
59	XWSSD50-13000	AA		C	Shield cable
60	QCNCW-7120RCZZ	AE		C	Washer (5mm)
61	PRNGT6639BHZZ	AB		C	Earth wire (Keyboard+Printer angle)
62	CPWBF7432BH01	BA	N	E	Key ring
63	TLABZ6974BHZZ	AA	N	D	RS232C I/F PWB unit
64	LANGT7466RCZC	AS	N	C	I/F S. W label
65	QCNCW-7721BHZZ	AQ	N	C	I/F angle
101	DUNT-1817BH01	AW		E	RS232C I/F cable
					Lock key unit (Printer) (Include No.34,36,37,59)

2 Bottom cabinet etc.

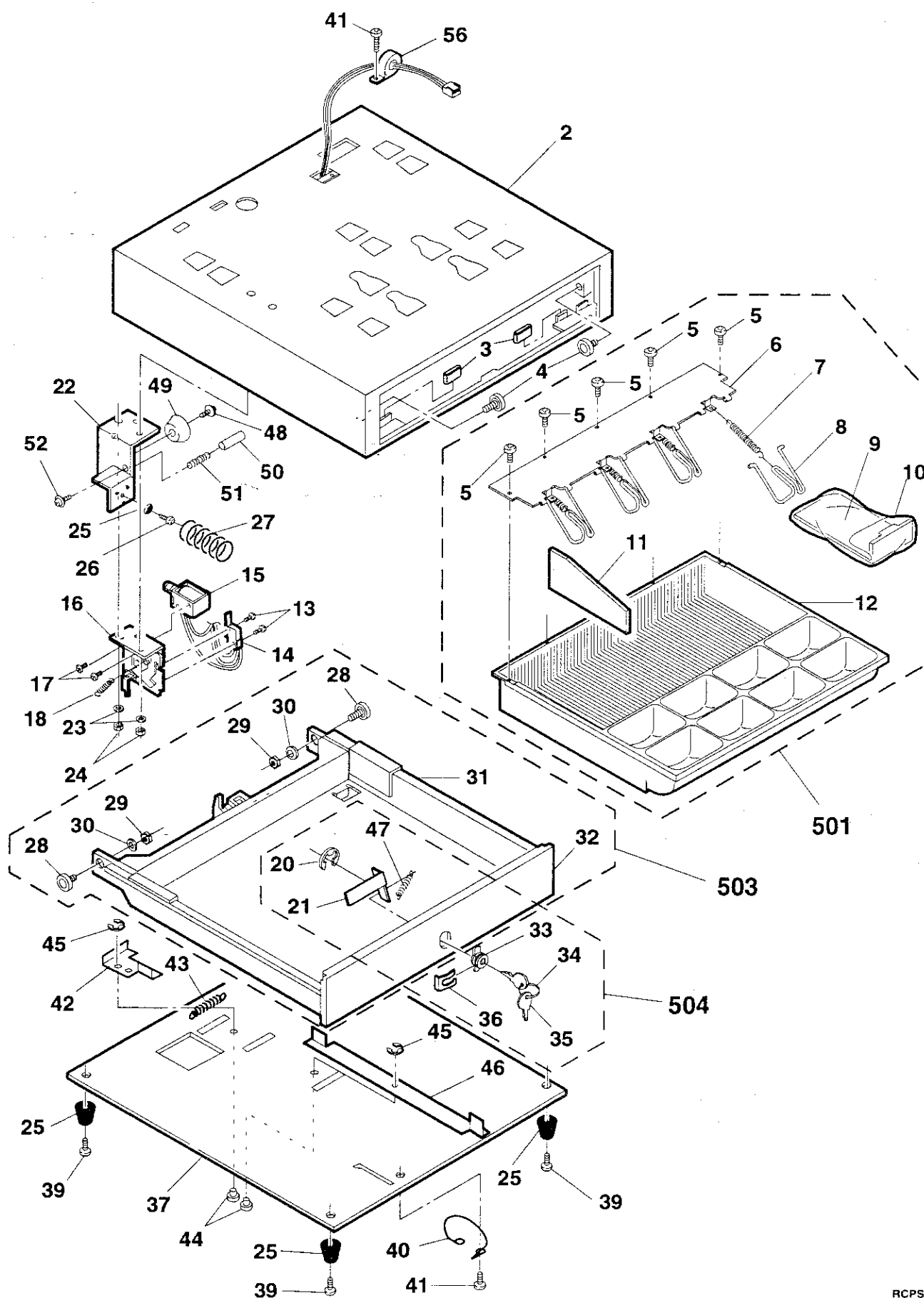


## ERA610

3 Drawer box unit(SK460 type)

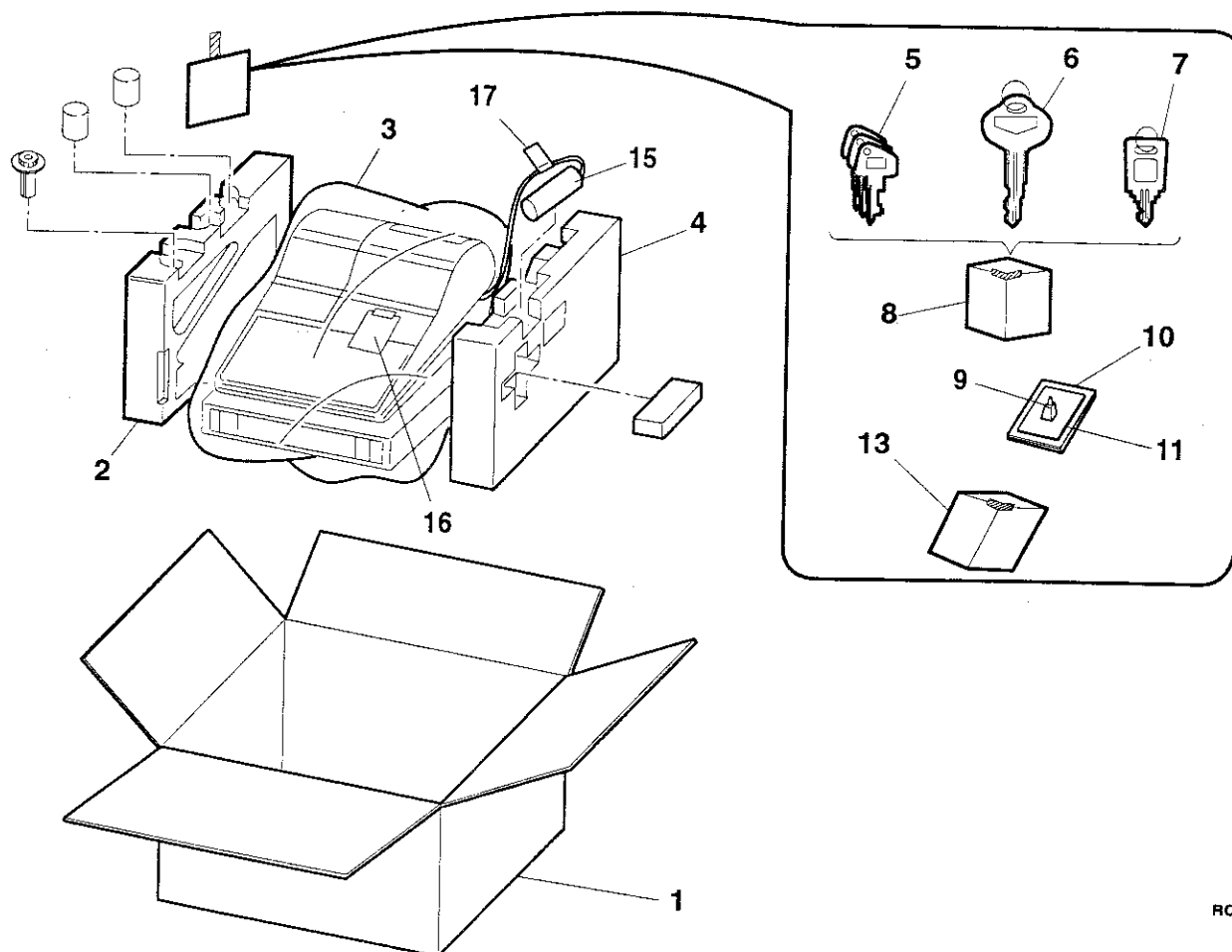
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
2	CCABM7171BHZZ	BQ		D	Cabinet unit
3	PGUMM6695BHZZ	AE		D	Stopper gum
4	NRÖLP6650BHZZ	AP		C	Roller
5	XUPSD30P08000	AA		C	Screw (3×8)
6	LBRC-6663BHZZ	AQ		C	Bill bracket
7	MSPRT6714BHZZ	AE		C	Bill spring
8	MLEVF6695BHZZ	AK		C	Bill lever
9	PSKR-6629BHZZ	AL		C	Bill separator
10	SSAKA5004BHZZ	AA		D	Vinyl bag
11	PSKR-6628BHZZ	AG		C	Separator
12	GCAS-6680BHZZ	BB		D	Money case
13	LX-BZ6776BHZZ	AA		C	Screw
14	QSW-M6872BHZZ	AR		B	Micro switch
15	CPLU-6641BH01	BC		B	Plunger
16	CFRM-6683BH01	AW		C	Lock frame unit
17	LX-BZ6775BHZZ	AA		C	Screw
18	MSPRT6713BHZZ	AD		C	Open lever spring
20	XRESJ50-06000	AA		C	E type ring (5mm)
21	MCAMM6634BHZZ	AE		C	Lock cam
22	LFRM-6682BHZZ	AN		C	Bell frame
23	XWSSD40-10000	AA		C	Washer (4mm)
24	XNESD40-32000	AA		C	Nut (M4)
25	PGUMM6696BHZZ	AE		D	Gum leg
26	XHBSD30P12000	AA		C	Screw (3×12)
27	MSPRC6723BHZZ	AE		C	Push out spring
28	NRÖLP6650BHZZ	AP		C	Roller
29	XNESD60-50000	AA		C	Nut (M6)
30	XWSSD60-15000	AA		C	Washer (6mm)
31	CCAS-6679BH01	BE		D	Case unit
32	GCOVA7053BHZZ	AR		D	Front cover
33	LKGiW7330BHZZ	AY		B	Lock key (Body)
34	PRNGT6637BHZZ	AA		C	Key ring
35	LKGiM7331BHZZ	AE		B	Lock key (1pc)
36	MSPRK6718BHZZ	AF		C	Lock key spring
37	CPLTM6680BHZZ	BM		D	Bottom plate unit ass'y
39	XHBSD40P15000	AA		C	Screw (4×15)
40	MSPRB6722BHZZ	AC		C	Earth spring
41	XHPSC30P08000	AA		C	Screw (3×8)
42	MLEVF6698BHZZ	AH		C	Manual lever "B"
43	MSPRB6724BHZZ	AC		C	Open spring
44	LPINS6641BHZZ	AD		C	Manual pin
45	XRESJ40-06000	AA		C	E type ring (4mm)
46	MLEVF6697BHZZ	AN		C	Manual lever "A"
47	MSPRT6725BHZZ	AC		C	Key spring
48	XBPSD40P06K00	AA		C	Screw (4×6K)
49	RALML6647BHZZ	AR		B	Bell
50	NSFTM6650BHZZ	AD		C	Bell hammer
51	MSPRC6715BHZZ	AE		C	Bell spring
52	XBPSD40P06000	AA		C	Screw (4×6)
56	LHLDW4081CCZZ	AC		C	Cable holder
501	CCAS-6680BH01	BG		E	Money case unit (4B/8C)
503	GDRW-6679BH01	BG		D	Drawer case unit
504	DUNT-1307BHZZ	AY		E	Lock key unit
	(Unit)				
901	GBÖXD7122BHZZ	BY		E	Drawer box unit

3 Drawer box unit(SK460 type)



#### 4 Packing material & Accessories

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	SPAKC7996BHSG	AZ	N	D	Packing case
2	SPAKA7985RCZZ	AQ		D	Packing cushion (Right)
3	PSHEP6812BHZZ	AF		D	Packing sheet (1200×1200)
4	SPAKA7986RCZZ	AR		D	Packing cushion (Left)
5	LKGIM7110RCZZ	AG		B	Master key (MA)
	LKGIM7111RCZZ	AG		B	Operator key (OP)
	LKGIM7129RCZZ	AE		B	Sub master key (SM)
6	LKGIM7331BHZZ	AE		B	Lock key (1pc)
7	LKGIM7356BHZZ	AK		B	Printer cover lock key
8	SSAKH3012CCZZ	AA		D	Vinyl bag (80×120mm)
9	UINK-1001CCZZ	AK		S	Ink (5cc)(Purple)
10	TINSE7317BHZZ	AX	N	D	Instruction book
	TINSF7318BHZZ	AX	N	D	Instruction book
	TINSG7319BHZZ	AX	N	D	Instruction book
	TINSS7320BHZZ	AX	N	D	Instruction book
11	TGANE1001BHZA	AF		D	Guaranty
	TCADZ2001BHZA	AM		D	Install card
13	SSAKH3015CCZZ	AA		D	Vinyl bag (200×300mm)
15	SSAKH4231CCZZ	AA		D	Vinyl sack (140×500)
16	TCADH6788BHZZ	AC		D	Caution card
17	TCAUS0002BHZZ	AD		D	Caution label
101	UBNDA6629BHZZ	AA		C	AC cord band



## 5 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	VHIF256004PJ1	AG		B	IC (F256004PJ1) [IC5]
2	VHIF258016PC/	AZ		B	IC (F258016PC) [IC4]
3	VHIGD74HC86DS	AH	N	B	IC (GD74HC86) [IC1]
4	VH1HM128F12SL	BN		B	IC (HM128F12SL) [IC10]
5	VH1H641510810	BA		B	IC (H641510810) [IC3]
6	VH1IR9393N/-1	AD		B	IC (IR9393N) [IC15,21]
7	VH1MAX211CA11	AW		B	IC (MAX211CA1) [IC7]
8	VH1MC34063AM1	AG		B	IC (MC34063AM1) [IC20]
9	VH1SN74HC00NS	AC		B	IC (GD74HC00) [IC8,22]
10	VH1TD62308F-1	AH		B	IC (TD62308F) [IC16,19]
11	VH1TD62503F-1	AF		B	IC (TD62503F) [IC18]
12	VH1UPD71051G/	AQ		B	IC ( $\mu$ PD7105GB3) [IC6]
13	QFSHD2109AFZZ	AC		C	Fuse holder (HD2109AF) [F1,2]
14	RC-EZ106ARC1A	AD		C	Capacitor (10WV 10 $\mu$ F) [C112,114,116,151,167]
15	RC-EZ107BRC1A	AH		C	Capacitor (10WV 100 $\mu$ F) [C118]
16	RC-EZ476ARC1A	AF		C	Capacitor (10WV 47 $\mu$ F) [C36,80,100,119,165]
17	RC-EZ685ARC1C	AD		C	Capacitor (16WV 6.8 $\mu$ F) [C141]
18	RCILZ1003LCZZ	AB		C	Coil (FLDR25C) [FB6,7,8,9,10,11,12,13,14,15,16]
19	RCORF6673RCZZ	AB		C	Ferrite bead (RD35C) [FB17,FIL9,18]
20	RFILN6012RCZZ	AB		C	EMI filter (1000pF) [FIL1,2,3,4,5,6,7,8]
21	RFILN6014RCZZ	AC		C	Filter (DNF331I) [FIL10,11,12,13,14,15,16,17]
22	VCEAGU1CW106M	AA		C	Capacitor (16WV 10 $\mu$ F) [C35,78,98,101,104,110,125,150]
23	VCEAGU1HW105M	AA		C	Capacitor (50WV 1 $\mu$ F) [C137]
24	VCEAGU2AW106M	AB		C	Capacitor (100WV 10 $\mu$ F) [C139]
25	VCEAGU2AW226M	AB		C	Capacitor (100WV 22 $\mu$ F) [C147]
26	VCQYNU1HM103K	AA		C	Capacitor (50WV 0.010 $\mu$ F) [C124]
27	VCQYNU1HM683K	AB		C	Capacitor (50WV 0.068 $\mu$ F) [C138]
28	VCTYPU1EX104M	AB		C	Capacitor (25WV 0.10 $\mu$ F) [C156]
29	VCCCTV1HH101J	AA		C	Capacitor (50WV 100PF) [C1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18]
	VCCCTV1HH101J	AA		C	Capacitor (50WV 100PF) [C19,20,21,22,23,24,25,26,27,28,29,30,31,32,47]
	VCCCTV1HH101J	AA		C	Capacitor (50WV 100PF) [C48,54,57,58,59,64,65,66,67,81,73,107,158,159]
	VCCCTV1HH101J	AA		C	Capacitor (50WV 100PF) [C160,166]
30	VCCCTV1HH221J	AA		C	Capacitor (50WV 220pF) [C132]
31	VCCCTV1HH331J	AA		C	Capacitor (50WV 330PF) [C37,38,39,43,44,45,46,53,55,56,60,61,62,63,68]
	VCCCTV1HH331J	AA		C	Capacitor (50WV 330PF) [C70,75,76,82,83,84,85,86,87,88,89,121,123,161]
	VCCCTV1HH331J	AA		C	Capacitor (50WV 330PF) [C162,163,164]
32	VCCCTV1HH470J	AA		C	Capacitor (50WV 47PF) [C52]
33	VHVICPS0.5/-1	AF		B	Varistor (ICPS0.5) [ICP]
34	VCKYTV1HB102K	AA		C	Capacitor (50WV 1000PF) [C90,91,92,93,94,95,108,109,122,126,127,128]
	VCKYTV1HB102K	AA		C	Capacitor (50WV 1000PF) [C129,135,142,143,153,154,155,168,169,171]
35	VCKYTV1HB103K	AB		C	Capacitor (50WV 0.010 $\mu$ F) [C51,74,144,145]
36	VCKYTV1HB152K	AA		C	Capacitor (50WV 1500PF) [C148,149]
37	VCKYTV1HF104Z	AA		C	Capacitor (50WV 0.10 $\mu$ F) [C33,34,50,77,79,96,97,99,102,103,105,106,111]
	VCKYTV1HF104Z	AA		C	Capacitor (50WV 0.10 $\mu$ F) [C113,115,117,120,130,133,134,157]
38	VHDSFPB54/-1	AC		B	Diode (SFPB54) [D10,19,20]
39	VHDSFPL52V/-1	AC		B	Diode (SFPL52V) [D14,15,16,17]
40	VHD1SS353/-1	AB		B	Diode (1SS353) [D1,2,4,5,6,8,11,12,13,18,21,22]
41	VHERD4.3MB1-1	AC		B	Zener diode (RD4.3MB1) [ZD1,3]
42	VHERD5.6PB/-1	AD		B	Zener diode (RD5.6PB) [ZD2]
43	VHERD6.2MB1-1	AC		B	Zener diode (RD6.2MB1) [ZD4]
44	VRS-TS2AD100J	AA		C	Resistor (1/10W 10 $\Omega$ $\pm$ 5%) [R114]
45	VRS-TS2AD101J	AA		C	Resistor (1/10W 100 $\Omega$ $\pm$ 5%) [R1,2,3,4,5,6,7,8,122,123,134]
46	VRS-TS2AD102J	AA		C	Resistor (1/10W 1.0K $\Omega$ $\pm$ 5%) [R35,36,37,38,84,85,86,87,88,89,90,91,92]
	VRS-TS2AD102J	AA		C	Resistor (1/10W 1.0K $\Omega$ $\pm$ 5%) [R93,94,103,104,130,153,154,155]
47	VRS-TS2AD103F	AA		C	Resistor (1/10W 10K $\Omega$ $\pm$ 1%) [R32]
48	VRS-TS2AD103J	AA		C	Resistor (1/10W 10K $\Omega$ $\pm$ 5%) [R9,10,11,12,13,14,15,16,17,21,22,23,24,25]
	VRS-TS2AD103J	AA		C	Resistor (1/10W 10K $\Omega$ $\pm$ 5%) [R26,33,34,39,40,41,42,43,44,45,46,47,48]
	VRS-TS2AD103J	AA		C	Resistor (1/10W 10K $\Omega$ $\pm$ 5%) [R49,50,51,52,53,55,56,57,58,59,60,61,62]
	VRS-TS2AD103J	AA		C	Resistor (1/10W 10K $\Omega$ $\pm$ 5%) [R63,64,65,66,67,68,71,72,74,75,76,77,78]
	VRS-TS2AD103J	AA		C	Resistor (1/10W 10K $\Omega$ $\pm$ 5%) [R79,80,81,82,83,120,121,125,148,149,150]
	VRS-TS2AD103J	AA		C	Resistor (1/10W 10K $\Omega$ $\pm$ 5%) [R151]
49	VRS-TS2AD104J	AA		C	Resistor (1/10W 100K $\Omega$ $\pm$ 5%) [R142]
50	VRS-TS2AD122F	AA		C	Resistor (1/10W 1.2K $\Omega$ $\pm$ 1%) [R31,113]
51	VRS-TS2AD132G	AA		C	Resistor (1/10W 1.3K $\Omega$ $\pm$ 2%) [R138]
52	VRS-TS2AD134F	AA		C	Resistor (1/10W 130K $\Omega$ $\pm$ 1%) [R152]
53	VRS-TS2AD182G	AA		C	Resistor (1/10W 1.8K $\Omega$ $\pm$ 2%) [R137]
54	VRS-TS2AD202J	AA		C	Resistor (1/10W 2K $\Omega$ $\pm$ 5%) [R97]
55	VRS-TS2AD220J	AA		C	Resistor (1/10W 22 $\Omega$ $\pm$ 5%) [R144]
56	VRS-TS2AD221J	AA		C	Resistor (1/10W 220 $\Omega$ $\pm$ 5%) [R111]
57	VRS-TS2AD223J	AA		C	Resistor (1/10W 22K $\Omega$ $\pm$ 5%) [R96]
58	VRS-TS2AD272J	AA		C	Resistor (1/10W 2.7K $\Omega$ $\pm$ 5%) [R115,128]
59	VRS-TS2AD273J	AA		C	Resistor (1/10W 27K $\Omega$ $\pm$ 5%) [R141]
60	VRS-TS2AD330J	AA		C	Resistor (1/10W 33 $\Omega$ $\pm$ 5%) [R110]
61	VRS-TS2AD332J	AA		C	Resistor (1/10W 3.3K $\Omega$ $\pm$ 5%) [R99]
62	VRS-TS2AD333J	AA		C	Resistor (1/10W 33K $\Omega$ $\pm$ 5%) [R107,127]
63	VRS-TS2AD362F	AA		C	Resistor (1/10W 3.6K $\Omega$ $\pm$ 1%) [R112]
64	VRS-TS2AD391J	AA		C	Resistor (1/10W 390 $\Omega$ $\pm$ 5%) [R145]
65	VRS-TS2AD470J	AA		C	Resistor (1/10W 47 $\Omega$ $\pm$ 5%) [FB1,2,3]
66	VRS-TS2AD472G	AA		C	Resistor (1/10W 4.7K $\Omega$ $\pm$ 2%) [R117]
67	VRS-TS2AD472J	AA		C	Resistor (1/10W 4.7K $\Omega$ $\pm$ 5%) [R28,29,30,100,105,106,129,132,147]

## ERA610

## 5 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
68	VRS-TS2AD473J	AA		C	Resistor (1/10W 47KΩ ±5%) [R131]
69	VRS-TS2AD562J	AA		C	Resistor (1/10W 56KΩ ±5%) [R108,135,136,143]
70	VRS-TS2AD563J	AA		C	Resistor (1/10W 56KΩ ±5%) [R116,140]
71	VRS-TS2AD622J	AA		C	Resistor (1/10W 6.2KΩ ±5%) [R101,102]
72	VRS-TS2AD623J	AA		C	Resistor (1/10W 6.2KΩ ±5%) [R98]
73	VRS-TS2AD682J	AA		C	Resistor (1/10W 6.8KΩ ±5%) [R139]
74	VRS-TS2AD912G	AA		C	Resistor (1/10W 9.1KΩ ±2%) [R118,119]
75	VS2SA1036KQRC	AB		B	Transistor (2SA1036KQRC) [Q1,7]
76	VS2SC2412K/-1	AB		B	Transistor (2SC2412K) [Q6,8]
77	VS2SD1898/-1	AD		B	Transistor (2SD1898) [Q5]
78	LX-BZ6782BHZZ	AA		C	Screw (3×8KS) [HIT1]
79	PRDAF6650RCZB	AG		C	Heat sink [HIT1]
80	QCNCM1060AC03	AB		C	Connector (3pin) [SW1]
81	QCNCM1101BHZZ	AC		C	Connector (5273-2)(2P) [PSCN]
82	QCNCM2379RC0E	AC		C	Connector (5pin) [SLICN2]
83	QCNCM5278NCZZ	AC		B	Connector (3pin)(5046-03A) [DRCN1,2]
84	QCNCM6865RC2J	AD		C	Connector (20pin)(5267-20A) [SLICN1]
85	QCNCM6865BH1J	AD		C	Connector (10P)(5267-10A) [DSCN1]
86	QCNCM6926RC1H	AE		C	Connector (18pin)(53052-18) [DISPCN1]
87	QCNCM7071RC6H	AN		C	Connector (68pin) [OPTCN]
88	QCNCW1057ACZZ	AB		C	Connector (Short socket) [SW1]
89	QCNCW1084ACZZ	AG		C	Connector (9pin) [SIOC]
90	QCNCW7086RC5J	AK		C	Connector (50pin)(5061-050-51) [RAMCN]
91	QCNCW-7124RCZZ	AB		C	GND wire 2 (To switch angle) [GND,FGND]
92	QCNCW-7518RCZZ	AR		C	Printer cable [PRCN]
93	QFS-A1037CCZZ	AC		A	Fuse (1.5A)(MINI TYPE) [F2]
94	QFS-C4081CCZZ	AF		A	Fuse (250V 2.5A) [F1]
95	QSOCZ2042SC32	AE		C	IC socket (32pin) [IC9,11,12]
96	RALMB6640RCZZ	AF		B	Buzzer (SMX06) [BZ1]
97	RCILC6653BHZZ	AS		C	Coil [L1]
98	RCORF6674RCZZ	AB		C	Beads core (SA39) [FB5]
99	RCRSP6664RCZZ	AF		B	Crystal (19.66MHz) [X1]
100	RMPTC8103QCKB	AD		B	Block resistor (10KΩ×8 1/8W ±10%) [RA1,2,3]
101	RTRNH6783RCZZ	AN		B	Converter transformer [T1]
102	RVR-M2517QCZZ	AE		B	Variable resistor (200KΩ) [VR1]
103	VCEAGU1CW108M	AD		C	Capacitor (16WV 1000μF) [C131]
104	VCEAGU1HW227M	AC		C	Capacitor (50WV 220μF) [C146]
105	VCEAGU1HW477M	AD		C	Capacitor (50WV 470μF) [C136]
106	VHECRDE562/-1	AE		B	Zener diode (CRDE562) [D23]
107	VHISTA401A/-1	AP		B	IC (STA401) [IC13,14]
108	VH127040RA11A	BM	N	B	IC (27040RA11A) [IC9]
109	VHSDRA2TE/-1	AG		B	Thyristor (DRA2TE) [Q2]
110	VRD-RB2HY561J	AA		C	Resistor (1/2W 560Ω ±5%) [R146]
111	VRD-RC2EY392G	AA		C	Resistor (1/4W 3.9KΩ ±2%) [R123]
112	VRD-RC2EY392J	AA		C	Resistor (1/4W 3.9KΩ ±5%) [R95]
113	VRD-RC2EY470J	AA		C	Resistor (1/4W 47Ω ±5%) [FB4]
114	VRS-RE3AAR68J	AA		C	Resistor (1W 0.68Ω ±5%) [R126]
115	VSKTD1414/-1	AL	N	B	Transistor (KTD1414) [Q10,11]
116	VS2SB881/-1	AH		B	Transistor (2SB881) [Q9]
117	VS2SC4153/-1	AG		B	Transistor (2SC4153) [Q3,4]
118	XBSSD30P08000	AA		C	Screw (3×8) [HIT1]
119	XNESD30-24000	AA		C	Nut (N3 ZMC) [HIT1]
120	UBATN6639BHZZ	BC		B	Battery (170MA 2.4V) [BT1]
(Unit)					
901	CPWBX7430BH01	CP	N	E	Main PWB unit

## 6 Display PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	VHIGD4069D/-1	AG		B	IC (GD4069UBD) [IC1]
2	VHIGD74LS393D	AL	N	B	IC (74LS393D) [IC2]
3	VH1H4728A75FS	AX		B	IC (H4728A75FS) [IC3]
4	VH1M66004FP-1	AY		B	IC (M66004FP) [IC4]
5	VHDDSS133HV-1	AA		B	Diode (DSS133HV) [D3]
6	VHDEK04/-1	AD		B	Diode (EK04) [D1]
7	VHERD39EB7/-1	AB		B	Zener diode (RD39EB7) [ZD1]
8	VRD-RC2EY105J	AA		C	Resistor (1/4W 1.0MΩ ±5%) [R2]
9	VRD-RC2EY221J	AA		C	Resistor (1/4W 220Ω ±5%) [R1]
10	VRD-RC2EY272J	AA		C	Resistor (1/4W 2.7KΩ ±5%) [R14]
11	VRD-RC2EY330J	AA		C	Resistor (1/4W 33Ω ±5%) [R3,4,5,6]
12	VRD-RC2EY472J	AA		C	Resistor (1/4W 4.7KΩ ±5%) [R10,11]
13	VRD-RC2EY473J	AA		C	Resistor (1/4W 47KΩ ±5%) [R7,8,9]
14	VRD-HT2EY8R2J	AA		C	Resistor (1/4W 8.2Ω ±5%) [R12,13]
15	RC-EZ106ARC1A	AD		C	Capacitor (10WV 10μF) [C1,2,21,22]
16	RC-KZ1054CCZZ	AB		C	Capacitor (50WV 0.1μF) [C8,18,19,23]
17	VCCCPU1HH150J	AA		C	Capacitor (50WV 15PF) [C3,4]



## 6 Display PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
18	VCEAEU1CW106M	AA		C	Capacitor (16WV 10 $\mu$ F) [C20]
19	VCKYPU1HB102K	AA		C	Capacitor (50WV 0.0010 $\mu$ F) [C15,25]
20	VCKYPU1HB471K	AA		C	Capacitor (50WV 470pF) [C6,7,10,12,13,14,16,24]
21	RC-Z1N104RCZU	AB		C	Capacitor (16WV 0.10 $\mu$ F) [C5,7]
22	VCTYPU1EX223M	AB		C	Capacitor (25WV 0.022 $\mu$ F) [C9]
23	QCNCM6865RC01	AC		C	Connector (9pin) [POP CN2]
24	QCNCM6865RC1A	AD		C	Connector (11pin) [POP CN1]
25	QCNCW-7454RCZZ	AH		C	Key cable 1 (7pin) [KEYCN1]
26	QCNCW-7599RCZA	AQ	N	C	Key cable 2 (9pin) [KEYCN2]
27	QCNCW-7615RCZZ	AT		C	Display cable [DISPCN1,2]
28	RCRSP6658RCZZ	AE		B	Crystal (32.768KHz) [X1]
29	RCRSZ6644RCZZ	AD		B	Crystal (4.19MHz) [X2]
30	RFILN6012RCZZ	AB		C	EMI filter (1000pF) [FL1,2]
31	RMPTC4104QCKB	AC		B	Block resistor (100K $\Omega$ ×4 1/8W $\pm$ 10%) [RA3]
32	RMPTC7104QCKB	AC		B	Block resistor (100K $\Omega$ ×7 1/4W $\pm$ 10%) [RA1]
33	RMPTC8104QCKB	AD		B	Block resistor (100K $\Omega$ ×8 1/8W $\pm$ 10%) [RA2]
34	RMPTC4471RCHZ	AD		B	Capacitor array (470pF×4) [CA1]
35	LBNDJ2003SCZZ	AA		C	Band.wire (Large)
36	PSPAG6723RCZZ	AF		C	Display spacer
37	VVD16MD08GK-1	BE		B	Display tube
	(Unit)				
901	CPWBN7431BH01	CA	N	E	Display PWB unit

## 7 Power supply PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LBNDJ6638BHZZ	AA		C	Nylon band (100mm)
2	LX-BZ6782BHZZ	AA		C	Screw (3×8KS)
3	PRDAF6651RCZA	AG		C	Heat sink
4	QCNCM1101BHZZ	AC		C	Connector (5273-2)(2P) [PS CN]
5	QCNCW-7575RCZZ	AE		C	PS cable (2pin)
6	QCNCW-7640RCZZ	AC		C	GND wire 1 [GND]
7	QFS-C2521TAZZ	AE		A	Fuse (250V 2.5A) [F1]
8	QFSHD2109AFZZ	AC		C	Fuse holder (HD2109AF) [F1]
9	RC-EZ688NRC1J	AQ		C	Capacitor (63WV 6800 $\mu$ F) [C1]
10	RCILC6652RCZZ	AK		C	Coil (MC182-201M) [L1]
11	RVR-M5410QCNC3	AD		B	Variable resistor (CT-6P) [VR1]
12	VCEAGU1VW228M	AG		C	Capacitor (35WV 2200 $\mu$ F) [C2]
13	VCCYNU2AM103K	AA		C	Capacitor (100WV 0.010 $\mu$ F) [C3]
14	VHDCP301///-1	AL	N	B	Diode (CP301) [DB1]
15	VH1STR2124/-1	AR		B	IC (STR2124) [IC1]
16	VRD-RC2EY103G	AA		C	Resistor (1/4W 10K $\Omega$ $\pm$ 2%) [R2]
17	XBPSD30P15KS0	AA		C	Screw (3×15KS)
18	XNESD30-24000	AA		C	Nut (N3 ZMC)
	(Unit)				
901	CPWBF7290BH05	BM		E	Power supply PWB unit

## 8 Noise filter PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	RTRNP6866BHZZ	BH		B	Power transformer
2	QCNCW-7356RCZZ	AF		C	PS cable
3	QFS-C1322QCZZ	AE		A	Fuse (250V 1A) [F1]
4	QFSHD2109AFZZ	AC		C	Fuse holder (HD2109AF) [F1]
5	RC-FZ1041RC2E	AE		C	Capacitor (250WV 0.1 $\mu$ F) [C1]
6	RC-FZ2241RC2E	AE		C	Capacitor (250WV 0.22 $\mu$ F) [C2]
7	RCILC6654RCZZ	AK		C	Coil (PLAC5020R6) [L1]
8	VRD-RB2HY394J	AA		C	Resistor (1/2W 390K $\Omega$ $\pm$ 5%) [R1]
	(Unit)				
901	CPWBF7288BH09	BN	N	E	Noise filter PWB unit [KA,KB]
	CPWBF7288BH10	BN	N	E	Noise filter PWB unit [TQ,TR,TS]

## 9 Pop-up PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LBNDJ2003SCZZ	AA		C	Band.wire (Large)
2	QCNCW6918BH09	AP		C	Connector (9pin) [DISP CN2]
3	QCNCW6918BH11	AR		C	Connector (11pin) [DISP CN1]

## ERA610

9 Pop-up PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
4	VVKFIP7B13/-1 (Unit)	A X		B	Display tube (FIP7813)
901	CPWBF7136BH01	B L		E	Pop up PWB unit

10	RS232C I/F PWB unit
----	---------------------

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	QCNCM6865BH1J	AD		C	Connector (10P)(5267-10A)	[DSCN]
2	QCNCM7125BH0I	AN		C	Connector (9pin)	[RSCN]
3	QSW-S6894BHZZ	AK	N	B	Slide switch	[SW1]
4	LANGT7466RCZZ	AS	N	C	Angle	
5	LX-BZ6782BHZZ	AA		C	Screw (3×8KS)	
6	TLABZ6974BHZZ	AA		D	IF SW label	
7	LBNDJ2003SCZZ	AA		C	Band,wire (Large)	
	(Unit)					
901	CPWBF7432BH0I	BA	N	E	RS232C I/F PWB unit	

11 Articles for consumption

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	DPAPR1006CSZZ	AR		S	Roll paper (5rolls/pack)
2	PRBN-6640RCZZ	AX		S	Ribbon cassette
3	UINK-1001CCZZ	AK		S	Ink for stamp (5cc)

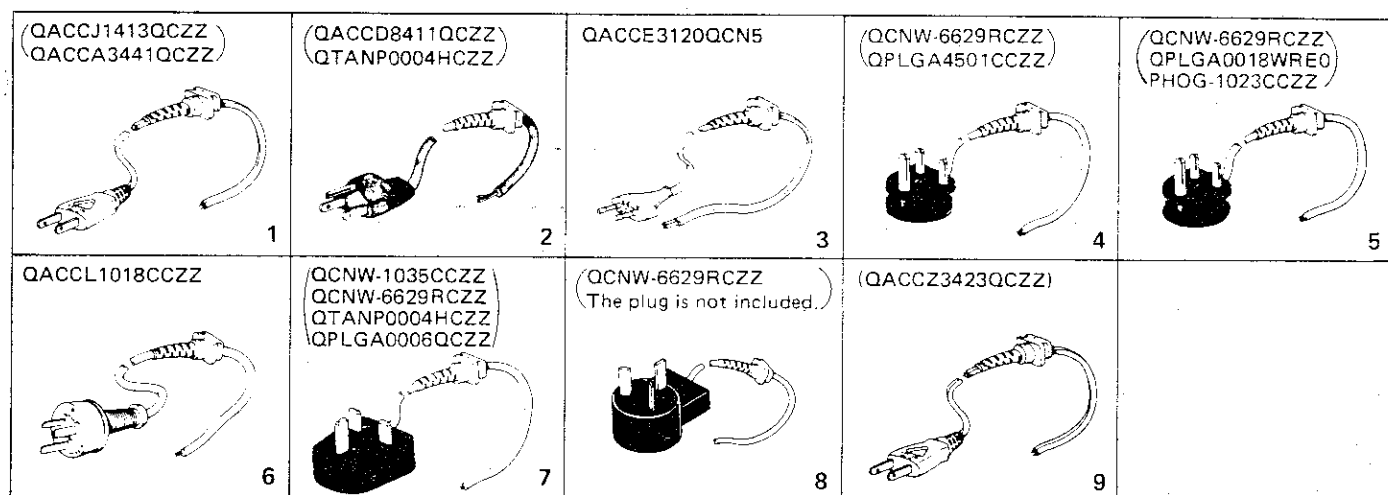
## 12 Special service tools and service options

[illegible]

## 13 AC CORD

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	QACCCJ1413QCZZ QACCA3441QCZZ	AG AL		B B	AC cord Japan, RB6, RB7, RC5, SC, SD AC cord SB
2	QACCD8411QCZZ QTANP0004HCZZ	AN AB		B B	AC cord U. S. A, Canada, Japan (Okinawa), Guam Lug terminal U. S. A, Canada
3	QACCE3120QCNC5	AP		B	AC cord RA1, RA2, RB3, RB5, SG, TQ, TR, TS, K AC cord Yugoslavia
4	QPLGA4501CCZZ	AK		B	Plug SE
	QCNW-6629RCZZ	AN		B	AC cord SE
	QPLGA0018WRE0	AN		B	Plug SH, RA5
5	QCNW-6629RCZZ PHOG-1023CCZZ	AN AB		B B	AC cord SH, RA5, SHE Bushing for AC cord SH, RA5, SHE
6	QACCL1018CCZZ QTANP0004HCZZ	AS AB		B B	AC cord KA, SL Lug terminal RC2, SM, SMT, RC1, SBA, RB8
7	QPLGA0006QCZZ QCNW-1035CCZZ	AN AH		B B	Plug KB, SM, SMT, RC1, SBA, RB8, RC2 AC cord KB, RC1, RC2, SM, SMT, SBA
	QCNW-6629RCZZ	AN		B	AC cord RB8
8	QCNW-6629RCZZ	AN		B	AC cord RB4 (AC cord only. The plug is not included.)
9	QACCC3423QCZZ	AH		B	AC cord SJ, SJ2

Note : Instead of AC cords QACCC3421QCZZ, QACCK1008CCZZ, the AC cord QACCE1422QCZZ(No.3) is supplied as service spare part.



## Table of destinations

SELECTION CODE	COUNTRIES
U	U. S. A., Guam
A	Canada
TS	Germany
TQ	SEEG territory other than Germany (Stamp : English)
TR	SEEG territory other than Germany (Stamp : Spanish)
KB	U. Kingdom
KA	Australia

SELECTION CODE	COUNTRIES
K	Korea

SELECTION CODE	COUNTRIES
SB	Saudi Arabia (127V area)
SBA	Saudi Arabia (220V area)
SC	Taiwan
SD	Venezuela
SE	Hong Kong
SG	Lebanon, Syria, Greece, Pakistan, Iran, Egypt, Thailand, Iraq, Mauritius, Seychelles, Tahiti, Jordan, Sudan, Turkey
SH	South Africa (U. S. A. version)
SHE	South Africa (Europe version)
SJ	Philippines (Europe version)
SJ2	Philippines (U. S. A. version)
SM	Kuwait, Qatar, Oman, UAE, Malta, Bahrain
SMT	Nigeria, Yemen, Kenya

SELECTION CODE	COUNTRIES
RA1	Morocco, Algeria, Tunisia, West Africa
RA2	Chile, Uruguay, Peru, Argentina, Paraguay
RA5	Sri Lanka

SELECTION CODE	COUNTRIES
RB3	Indonesia
RB4	
RB5	Cyprus
RB6	Panama
RB7	Barbados
RB8	Malaysia (U. S. A. version)

SELECTION CODE	COUNTRIES
RC1	Malaysia (Europe version)
RC2	Singapore
RC5	Dominican Republic, Ecuador

## Index

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
[C]				
CCABM7171BHZZ	3- 2	BQ		D
CCAS-6679BH01	3- 31	BE		D
CCAS-6680BH01	3- 501	BG		E
CFRM-6683BH01	3- 16	AW		C
CKOG-6708RCZZ	12- 1	BU		S
CPLTM6680BHZZ	3- 37	BM		D
CPLU-6641BH01	3- 15	BC		B
CPWBF7136BH01	1- 5	BL		E
"	9- 901	BL		E
CPWBF7288BH09	2- 2	BN	N	E
"	8- 901	BN	N	E
CPWBF7288BH10	2- 2	BN	N	E
"	8- 901	BN	N	E
CPWBF7290BH05	2- 24	BM		E
"	7- 901	BM		E
CPWBF7432BH01	2- 61	BA	N	E
"	10- 901	BA	N	E
CPWBN7431BH01	1- 15	CA	N	E
"	6- 901	CA	N	E
CPWBX7430BH01	2- 23	CP	N	E
"	5- 901	CP	N	E
CSW-P6875RC01	1- 30	AW		B
[D]				
DKIT-8633RCZZ	12- 9	BE		S
DKIT-8643RCZZ	12- 8	BG		S
OPAPR1006CSZZ	11- 1	AR		S
DUNT-1307BHZZ	3- 504	AY		E
DUNT-1817BH01	2- 101	AW		E
DUNTK4871BHZZ	1- 501	BZ	N	E
DUNTK8296RCZZ	12- 31	BC		S
[G]				
GBOXD7122BHZZ	3- 901	BY		E
GCAB-7143RCZZ	1- 4	AH		D
GCABA7142RCAB	2- 30	BD		D
GCABB7141RCSA	1- 9	AY		D
GCAS-6680BHZZ	3- 12	BB		D
GCOVA7038RCZA	1- 1	AQ		D
GCOVA7039RCSA	1- 3	AM		D
GCOVA7040RCSA	2- 31	AQ		D
GCOVA7053BHZZ	3- 32	AR		D
GCOVB7043RCSC	12- 10	BG	N	D
GCOVB7043RCZZ	12- 7	BC		S
GCOVB7047RCZZ	12- 5	AY		S
GDRW-6679BH01	3- 503	BG		D
GFTAF6770RCSA	2- 40	AC		D
GFTAS6769RCSA	2- 29	AC		D
[H]				
HPNLC6817RCSA	1- 44	AS	N	D
HPNLC6818BHSO	1- 11	AP	N	D
[J]				
JKNBZ6882BHZZ	1- 40	AE		C
[K]				
KI-OB6754RCZZ	2- 3	CB		E
[L]				
LANGQ7472RCZA	2- 22	AE		C
LANGQ7476RCZA	2- 11	AF		C
LANGT7465RCZZ	1- 23	AK		C
LANGT7466RCZC	2- 63	AS	N	C
"	10- 4	AS	N	C
LANGT7505RCZZ	1- 16	AM		C
LBNDJ0005FCZZ	1- 34	AB		C
LBNDJ2003SCZZ	1- 12	AA		C
"	2- 50	AA		C
"	6- 35	AA		C
"	9- 1	AA		C
"	10- 7	AA		C
LBNDJ2004BHZZ	1- 41	AB		C
LBNDJ6638BHZZ	7- 1	AA		C
LBRC-2321RCZZ	12- 21	AN		S
LBRC-6663BHZZ	3- 6	AQ		C
LCHSM6692RCZA	2- 39	AW		C
LFRM-6682BHZZ	3- 22	AN		C
LHLDK6813RCSA	2- 15	AE		C
LHLDW0007SCZZ	2- 18	AA		C
LHLDW0008SCZZ	2- 26	AA		C
LHLDW0024SCZZ	1- 31	AA		C
"	2- 28	AA		C
LHLDW4081CCZZ	3- 56	AC		C
LHLDW6820BHZZ	1- 63	AE		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
LHLDW6821BHZZ	2- 52	AD		C
LKGIM7110RCZZ	1- 24	AG		B
"	4- 5	AG		B
LKGIM7111RCZZ	1- 24	AG		B
"	4- 5	AG		B
LKGIM7113RCZZ	12- 4	AK		B
LKGIM7126RCZZ	12- 6	AL		B
LKGIM7129RCZZ	1- 24	AE		B
"	4- 5	AE		B
LKGIM7331BHZZ	3- 35	AE		B
"	4- 6	AE		B
LKGIM7356BHZZ	2- 37	AK		B
"	4- 7	AK		B
LKGIW7256RCZZ	1- 25	AP		B
LKGIW7330BHZZ	3- 33	AY		B
LKGIW7355BHZA	2- 34	AV		B
LPI NS6641BHZZ	3- 44	AD		C
LX-BZ6773RCZZ	12- 33	AA		C
LX-BZ6775BHZZ	3- 17	AA		C
LX-BZ6776BHZZ	3- 13	AA		C
LX-BZ6782BHZZ	1- 17	AA		C
"	5- 78	AA		C
"	7- 2	AA		C
"	10- 5	AA		C
LX-LZ5001CHZZ	2- 48	AC		C
[M]				
MCAMM6634BHZZ	3- 21	AE		C
MLEVF6695BHZZ	3- 8	AK		C
MLEVF6697BHZZ	3- 46	AN		C
MLEVF6698BHZZ	3- 42	AH		C
MSPRB6722BHZZ	3- 40	AC		C
MSPRB6724BHZZ	3- 43	AC		C
MSPRC6715BHZZ	3- 51	AE		C
MSPRC6723BHZZ	3- 27	AE		C
MSPRK6718BHZZ	3- 36	AF		C
MSPRK6730BHZZ	2- 36	AC		C
MSPRT6713BHZZ	3- 18	AD		C
MSPRT6714BHZZ	3- 7	AE		C
MSPRT6725BHZZ	3- 47	AC		C
[N]				
NRÖLP6650BHZZ	3- 4	AP		C
"	3- 28	AP		C
NSFTM6650BHZZ	3- 50	AD		C
[P]				
PCUSG1220BHZZ	2- 9	AE		C
PFILW6923BHSJ	1- 6	AR	N	D
PFILW6924BHSJ	1- 10	AQ	N	D
PFILW6925RCZZ	1- 2	AK		D
PFILW6926RCZZ	1- 14	AD		D
PGUMM6695BHZZ	3- 3	AE		D
PGUMM6696BHZZ	3- 25	AE		D
PGUMM6699RCZZ	2- 5	AB		C
PHOG-1060CCZZ	1- 38	AA		C
PRBN-6640RCZZ	11- 2	AX		S
PRDAF6650RCZB	5- 79	AG		C
PRDAF6651RCZA	7- 3	AG		C
PRNGT6637BHZZ	3- 34	AA		C
PRNGT6639BHZZ	2- 59	AB		C
PSHEP6789BHZZ	2- 13	AP		C
PSHEP6812BHZZ	4- 3	AF		D
PSKR-6628BHZZ	3- 11	AG		C
PSKR-6629BHZZ	3- 9	AL		C
PSPAG6723RCZZ	6- 36	AF		C
PSPAG6729BHZZ	1- 7	AD	N	C
PSTM-6780RC01	2- 4	AR		C
PSTM-6782RCZZ	2- 4	AS		C
PSTM-6785RC01	2- 4	AS		C
[Q]				
QACCE3120QCN5	2- 16	AL		B
QACCL7421QCN1	2- 16	AW		B
QCNCM1060AC03	5- 80	AB		C
QCNCM1101BHZZ	5- 81	AC		C
"	7- 4	AC		C
QCNCM2379RC0E	5- 82	AC		C
QCNCM5278NCZZ	5- 83	AC		B
QCNCM6865BH1J	5- 85	AD		C
"	10- 1	AD		C
QCNCM6865RC01	6- 23	AC		C
QCNCM6865RC1A	6- 24	AD		C
QCNCM6865RC2J	5- 84	AD		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
QCNCM6926RC1H	5- 86	AE		C
QCNCM7071RC6H	5- 87	AN		C
QCNCM7125BH01	10- 2	AN		C
QCNCW1057ACZZ	5- 88	AB		C
QCNCW1084ACZZ	5- 89	AG		C
QCNCW6918BH09	9- 2	AP		C
QCNCW6918BH11	9- 3	AR		C
QCNCW7086RC5J	5- 90	AK		C
QCNCW-7000RC20	1- 64	AD		C
QCNCW-7049RCZZ	12- 32	AD		C
QCNCW-7120RCZZ	1- 39	AE		C
//	2- 56	AE		C
QCNCW-7122RCZZ	2- 10	AD		C
QCNCW-7124RCZZ	5- 91	AB		C
QCNCW-7125RCZZ	2- 8	AD		C
QCNCW-7212RCZZ	2- 16	AH		B
QCNCW-7356RCZZ	8- 2	AF		C
QCNCW-7434RCZZ	1- 29	AC		C
QCNCW-7454RCZZ	6- 25	AH		C
QCNCW-7518RCZZ	2- 43	AR		C
//	5- 92	AR		C
QCNCW-7575RCZZ	2- 42	AE		C
//	7- 5	AE		C
QCNCW-7590RCZZ	2- 41	AC		C
QCNCW-7591RCZZ	2- 54	AE		C
QCNCW-7592RCZZ	2- 41	AD		C
QCNCW-7599RCZA	6- 26	AQ	N	C
QCNCW-7615RCZZ	1- 36	AT		C
//	6- 27	AT		C
QCNCW-7640RCZZ	7- 6	AC		C
QCNCW-7721BHZZ	2- 64	AQ	N	C
QCNCW-7722BHZZ	1- 43	BA	N	C
QFS-A1037CCZZ	5- 93	AC		A
QFS-C1322QCZZ	8- 3	AE		A
QFS-C2521TAZZ	7- 7	AE		A
QFS-C4081CCZZ	5- 94	AF		A
QFSHD2109AFZZ	5- 13	AC		C
//	7- 8	AC		C
//	8- 4	AC		C
QPLGA0006QCZZ	2- 16	AQ		C
QSOCZ2042SC32	5- 95	AE		C
QSW-C9212QCZZ	2- 17	AH		B
QSW-M6872BHZZ	3- 14	AR		B
QSW-S6850BHZZ	1- 28	AM	N	B
QSW-S6894BHZZ	10- 3	AK	N	B
QTANN6629RCZZ	2- 14	AF		C
QTANP0004BHZA	2- 20	AE	N	C
[ R ]				
RALMB6640RCZZ	5- 96	AF		B
ALML6647BHZZ	3- 49	AR		B
RC-EZ106ARC1A	5- 14	AD		C
//	6- 15	AD		C
RC-EZ107BRC1A	5- 15	AH		C
RC-EZ476ARC1A	5- 16	AF		C
RC-EZ685ARC1C	5- 17	AD		C
RC-EZ688NRC1J	7- 9	AQ		C
RC-FZ1041RC2E	8- 5	AE		C
RC-FZ2241RC2E	8- 6	AE		C
RC-KZ1054CCZZ	6- 16	AB		C
RC-Z1N104RCZU	6- 21	AB		C
RCILC6652RCZZ	7- 10	AK		C
RCILC6653BHZZ	5- 97	AS		C
RCILC6654RCZZ	8- 7	AK		C
RCILZ1003LCZZ	5- 18	AB		C
RCORF1016LCZZ	1- 20	AL		C
RCORF6661RCZZ	2- 45	AK		C
RCORF6662RCZZ	1- 45	AK		C
RCORF6666RCZZ	2- 25	AM		C
RCORF6673RCZZ	5- 19	AB		C
RCORF6674RCZZ	5- 98	AB		C
RCORF6682RCZZ	2- 47	AE		C
RCORF6683RCZZ	1- 18	AM		C
RCORF6684RCZZ	1- 32	AG		C
RCORF7001SCZZ	2- 49	AL		C
RCRSP6658RCZZ	6- 28	AE		B
RCRSP6664RCZZ	5- 99	AF		B
RCRSZ6644RCZZ	6- 29	AD		B
RFILN6012RCZZ	5- 20	AB		C
//	6- 30	AB		C
RFILN6014RCZZ	5- 21	AC		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
RMPTC4104QCKB	6- 31	AC		B
RMPTC7104QCKB	6- 32	AC		B
RMPTC8103QCKB	5- 100	AD		B
RMPTC8104QCKB	6- 33	AD		B
RMPTE4471RCHZ	6- 34	AD		B
RTRNH6783RCZZ	5- 101	AN		B
RTRNP6866BHZZ	8- 1	BH		B
RVR-M2517QCZZ	5- 102	AE		B
RVR-M5410QCN3	7- 11	AD		B
[ S ]				
SPAKA7985RCZZ	4- 2	AQ		D
SPAKA7986RCZZ	4- 4	AR		D
SPAKC7996BHSB	4- 1	AZ	N	D
SSAKA5004BHZZ	3- 10	AA		D
SSAKH3012CCZZ	4- 8	AA		D
SSAKH3015CCZZ	4- 13	AA		D
SSAKH4231CCZZ	4- 15	AA		D
[ T ]				
TCAOH6788BHZZ	4- 16	AC		D
TCAOZ2001BHZA	4- 11	AM		D
TCAUS0002BHZZ	4- 17	AD		D
TCAUS6677BHZZ	1- 37	AD		D
TGANE1001BHZA	4- 11	AF		D
TINSE7317BHZZ	4- 10	AX	N	D
TINSF7318BHZZ	4- 10	AX	N	D
TINSG7319BHZZ	4- 10	AX	N	D
TINSS7320BHZZ	4- 10	AX	N	D
TLABH6994BHZZ	1- 101	AT	N	D
TLABZ6974BHZZ	2- 62	AA	N	D
//	10- 6	AA		D
[ U ]				
UBATN6639BHZZ	5- 120	BC		B
UBNDA6629BHZZ	4- 101	AA		C
UINK-1001CCZZ	4- 9	AK		S
//	11- 3	AK		S
UKOG-6704RCZZ	12- 2	AV		S
UKOG-6705RCZZ	12- 3	BC		S
[ V ]				
VCCCPU1HH150J	6- 17	AA		C
VCCCTV1HH101J	5- 29	AA		C
//	5- 29	AA		C
//	5- 29	AA		C
//	5- 29	AA		C
VCCCTV1HH221J	5- 30	AA		C
VCCCTV1HH331J	5- 31	AA		C
//	5- 31	AA		C
//	5- 31	AA		C
VCCCTV1HH470J	5- 32	AA		C
VCEAEU1CW106M	6- 18	AA		C
VCEAGU1CW106M	5- 22	AA		C
VCEAGU1CW108M	5- 103	AD		C
VCEAGU1HW105M	5- 23	AA		C
VCEAGU1HW227M	5- 104	AC		C
VCEAGU1HW477M	5- 105	AD		C
VCEAGU1VW228M	7- 12	AG		C
VCEAGU2AW106M	5- 24	AB		C
VCEAGU2AW226M	5- 25	AB		C
VCKYPU1HB102K	6- 19	AA		C
VCKYPU1HB471K	6- 20	AA		C
VCKYTV1HB102K	5- 34	AA		C
//	5- 34	AA		C
VCKYTV1HB103K	5- 35	AB		C
VCKYTV1HB152K	5- 36	AA		C
VCKYTV1HF104Z	5- 37	AA		C
//	5- 37	AA		C
VCCYNU1HM103K	5- 26	AA		C
VCCYNU1HM683K	5- 27	AB		C
VCCYNU2AM103K	7- 13	AA		C
VCTYPU1EX104M	5- 28	AB		C
VCTYPU1EX223M	6- 22	AB		C
VHDCP301///-1	7- 14	AL	N	B
VHDDSS133HV-1	6- 5	AA		B
VHDEK04///-1	6- 6	AD		B
VHDSFPB54///-1	5- 38	AC		B
VHDSFPL52V///-1	5- 39	AC		B
VHDISS353///-1	5- 40	AB		B
VHECRDE562///-1	5- 106	AE		B
VHERD39EB7///-1	6- 7	AB		B
VHERD4.3MB1-1	5- 41	AC		B
VHERD5.6PB///-1	5- 42	AD		B

## ERA610

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
VHERD6.2MB1-1	5- 43	AC		B
VHIF256004PJ1	5- 1	AG		B
VHIF258016PC/-	5- 2	AZ		B
VHIGD4069D/-1	5- 1	AG		B
VHIGD74HC86DS	5- 3	AH	N	B
VHIGD74LS393D	6- 2	AL	N	B
VHIMI28F12SL	5- 4	BN		B
VHIH4728A75FS	6- 3	AX		B
VHIH641510810	5- 5	BA		B
VHIR9393N/-1	5- 6	AD		B
VHIMAX211CA11	5- 7	AW		B
VHIMC34063AM1	5- 8	AG		B
VHIM66004FP-1	6- 4	AY		B
VHISN74HC00NS	5- 9	AC		B
VHISTA401A/-1	5- 107	AP		B
VHISTR2124/-1	7- 15	AR		B
VHITD62308F-1	5- 10	AH		B
VHITD62503F-1	5- 11	AF		B
VHIUPD71051G/-	5- 12	AQ		B
VHI27040RA11A	5- 108	BM	N	B
VHSDRA2TE///-1	5- 109	AG		B
VHVICPS0.5/-1	5- 33	AF		B
VRD-HT2EY8R2J	6- 14	AA		C
VRD-RB2HY394J	8- 8	AA		C
VRD-RB2HY561J	5- 110	AA		C
VRD-RC2EY103G	7- 16	AA		C
VRD-RC2EY105J	6- 8	AA		C
VRD-RC2EY221J	6- 9	AA		C
VRD-RC2EY272J	6- 10	AA		C
VRD-RC2EY330J	6- 11	AA		C
VRD-RC2EY392G	5- 111	AA		C
VRD-RC2EY392J	5- 112	AA		C
VRD-RC2EY470J	5- 113	AA		C
VRD-RC2EY472J	6- 12	AA		C
VRD-RC2EY473J	6- 13	AA		C
VRS-RE3AAR68J	5- 114	AA		C
VRS-TS2AD100J	5- 44	AA		C
VRS-TS2AD101J	5- 45	AA		C
VRS-TS2AD102J	5- 46	AA		C
//	5- 46	AA		C
VRS-TS2AD103F	5- 47	AA		C
VRS-TS2AD103J	5- 48	AA		C
//	5- 48	AA		C
//	5- 48	AA		C
//	5- 48	AA		C
//	5- 48	AA		C
VRS-TS2AD104J	5- 49	AA		C
VRS-TS2AD122F	5- 50	AA		C
VRS-TS2AD132G	5- 51	AA		C
VRS-TS2AD134F	5- 52	AA		C
VRS-TS2AD182G	5- 53	AA		C
VRS-TS2AD202J	5- 54	AA		C
VRS-TS2AD220J	5- 55	AA		C
VRS-TS2AD221J	5- 56	AA		C
VRS-TS2AD223J	5- 57	AA		C
VRS-TS2AD272J	5- 58	AA		C
VRS-TS2AD273J	5- 59	AA		C
VRS-TS2AD330J	5- 60	AA		C
VRS-TS2AD332J	5- 61	AA		C
VRS-TS2AD333J	5- 62	AA		C
VRS-TS2AD362F	5- 63	AA		C
VRS-TS2AD391J	5- 64	AA		C
VRS-TS2AD470J	5- 65	AA		C
VRS-TS2AD472G	5- 66	AA		C
VRS-TS2AD472J	5- 67	AA		C
VRS-TS2AD473J	5- 68	AA		C
VRS-TS2AD562J	5- 69	AA		C
VRS-TS2AD563J	5- 70	AA		C
VRS-TS2AD622J	5- 71	AA		C
VRS-TS2AD623J	5- 72	AA		C
VRS-TS2AD682J	5- 73	AA		C
VRS-TS2AD912G	5- 74	AA		C
VSKTD1414/-1	5- 115	AL	N	B
VS2SA1036KQRC	5- 75	AB		B
VS2SB881-///-1	5- 116	AH		B
VS2SC2412K/-1	5- 76	AB		B
VS2SC4153-/-1	5- 117	AG		B
VS2SD1898///-1	5- 77	AD		B
VVD16MD08GK-1	6- 37	BE		B

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
VVKFIP7B13/-1	9- 4	AX		B
[X]				
XBBSC30P06000	1- 8	AA		C
XBBSC30P20000	2- 32	AA		C
XBPBZ40P08K00	2- 19	AA		C
XBPSD26P04K00	1- 26	AA		C
XBPSD30P04KS0	12- 34	AA		C
XBPSD30P06KS0	1- 61	AA		C
//	2- 44	AA		C
XBPSD30P06K00	1- 22	AA		C
XBPSD30P15KS0	7- 17	AA		C
XBPSD40P06KS0	12- 35	AA		C
XBPSD40P06K00	3- 48	AA		C
XBPSD40P06000	3- 52	AA		C
XBPSD40P22000	12- 25	AA		C
XBSSD30P08000	5- 118	AA		C
XBSSD40P16000	12- 23	AA		C
XEBSD30P06000	1- 21	AA		C
//	2- 35	AA		C
XEBSD30P08000	1- 35	AA		C
//	2- 12	AA		C
XHBSD30P06000	1- 13	AA		C
XHBSD30P08000	1- 19	AA		C
XHBSD30P12000	3- 26	AA		C
XHBSD40P15000	3- 39	AA		C
XHPSC30P08000	3- 41	AA		C
XHPSD30P06K00	2- 7	AA		C
XHPSD40P08KS0	2- 38	AA		C
XJBSD30P10000	2- 46	AA		C
XJPSD30P12X00	2- 6	AB		C
XNESD30-24000	2- 27	AA		C
//	5- 119	AA		C
//	7- 18	AA		C
XNESD40-32000	3- 24	AA		C
//	12- 26	AA		C
XNESD60-50000	3- 29	AA		C
XRESJ40-06000	3- 45	AA		C
XRESJ50-06000	3- 20	AA		C
XTPSD40P16000	12- 22	AA		C
XUBSD40P08000	2- 1	AA		C
XUPSD23P08000	1- 27	AA		C
XUPSD30P08000	3- 5	AA		C
XUPSD30P16000	2- 51	AA		C
XUSSD40P20000	12- 24	AA		C
XWHS30-05080	12- 36	AA		C
XWSSD40-10000	3- 23	AA		C
XWSSD50-13000	2- 55	AA		C
XWSSD60-15000	3- 30	AA		C
[O]				
0EMKE25122061	1- 60	AA		C
0EMKE31133061	1- 56	AA		C
0EMKT80020001	1- 46	AC		C
0EMKT80220001	1- 51	AE		C
0EMWK45001410	1- 49	AD		C
0EMWK45001510	1- 50	AE		C
0EMWK45531120	1- 48	AC		C
0EMWK45531220	1- 53	AC		C
0EMWK46466510	1- 47	AC		C
0EMWK46466610	1- 52	AE		C
0EMWK46476810	1- 55	BC		C
0EMWK46690210	1- 54	AW		C
0EMWK46690510	1- 58	AX		C
0EMWK46696010	1- 57	BA		C
0EMWK46696310	1- 59	BG		E

# SHARP INSTALLATION MANUAL

CODE: 00ZERA610VIME

## ELECTRONIC CASH REGISTER

### MODEL ER-A610

SRV Key : LKGIM7113RCZZ

PRINTER: M-820

(For "V" version)

#### CAUTION

EXTREME CAUTION MUST BE TAKEN WHEN SERVICING THIS MACHINE. EVEN THOUGH THE MODE SWITCH IS IN THE  $\odot$  POSITION, VOLTAGE IS STILL SUPPLIED TO THE ENTIRE MACHINE.

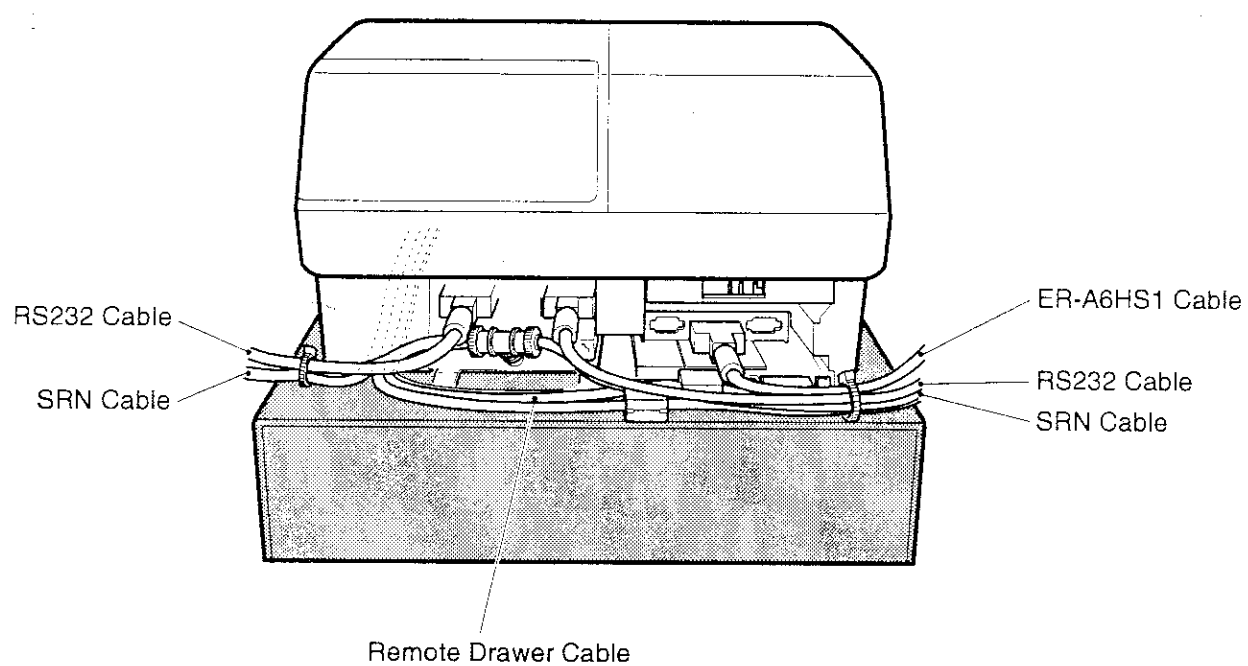
WHEN WORKING ON THIS MACHINE MAKE SURE THAT THE POWER CORD IS REMOVED FROM THE WALL OUTLET.

#### CONTENTS

CHAPTER 1. GENERAL .....	1
CHAPTER 2. LIST OF OPTIONS .....	1
CHAPTER 3. REMOVING THE MAIN DRAWER .....	2
CHAPTER 4. REMOVING THE TOP CABINET .....	3
CHAPTER 5. EXPANSION RAM CHIP and RAM BOARD (ER-01RA, ER-02RA, ER-01MB and ER-02MB) .....	4
CHAPTER 6. CONTROL ROM (ER-A61R1) .....	7
CHAPTER 7. IN-LINE I/F (ER-A6IN) and RS232 I/F (ER-A5RS) .....	8
CHAPTER 8. REMOTE DRAWER (ER-03DW) .....	12
CHAPTER 9. SLIP PRINTER (ER-31SP) .....	14
CHAPTER 10. HAND SCANNER (ER-A6HS1) .....	18
CHAPTER 11. JOURNAL NEAR END SENSOR (DKIT-8643RCZZ) .....	19
CHAPTER 12. DRAWER FIXING KIT (DKIT-8633RCZZ) .....	20
CHAPTER 13. PRESETS LOADER .....	21

Parts marked with "△" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

※ Example of wire treatment when all system is installed:





## CHAPTER 1. GENERAL

This manual describes the installation and operational test procedures for the Model ER-A610 system ECR options.

Be sure to read the "BEFORE INSTALLING OPTIONS" prior to installing any option.

Descriptions of the specifications of the ECR and options subject to change.

Note: This manual describes only options whose installing procedures need to be explained.

### \* BEFORE INSTALLING OPTIONS

1. If you install any options in an ER-A670 register already in use, you must reset the totals. Please notify its user before performing the installation.  
If the register is not reset, sales data stored in the register may be destroyed due to possible incorrect installation.
2. Print out the SRV-mode and PGM2-mode programs before installing any option. It may be necessary to modify each program after installation. These printouts are needed for this modification.

3. If you install the option PWBs (ER-A6IN, ER-A5RS), option control ROM (ER-A61R1) and expansion RAM chip in the ER-A650 register already in use, perform data saving for memory protection by using the SIO interface in advance.
4. As a safety measure, be sure to turn the mode switch to the OFF position and unplug the register before installing any option.
5. The ER-A610 is equipped with various SRV-mode functions to aid you in installing the options. Never enter any job numbers other than those shown in each of the following sections, so that data stored is not destroyed.
6. After installing any options, start the ER-A610 register by performing the service reset or the master reset.

- Service reset
- 1) Turn the mode switch to the SRV' position to turn on the power.
  - 2) Turn the mode switch to the SRV position.

Sample printout  
PRG. RESET \*\*\*

- Master reset
- 1) Turn the mode switch to the SRV' position to turn on the power.
  - 2) Turn the mode switch to the SRV position, holding down the journal feed key.

Sample printout  
MASTER. RESET \*\*\*

## CHAPTER 2. LIST OF OPTIONS

### 1. Options

NO.	NAME	MODEL	DESCRIPTION
1	REMOTE PRINTER	ER-03RP	Via SRN I/F (ER-A6IN)
		ER-04RP	
2	REMOTE DRAWER	ER-03DW	4B/8C, MAX. 3 units
3	COIN CASE	ER-48CC3	4B/8C
4	COIN CASE COVER	ER-02CV1~5	For ER-48CC3
5	EXPANSION RAM CHIP	ER-01RA	32K bytes RAM chip
		ER-02RA	128K bytes RAM chip
6	EXPANSION MEMORY BOARD	ER-01MB	128K bytes memory board with 3 IC sockets (For ER-02RA)
		ER-02MB	1M bytes memory board
7	IN-LINE SYSTEM	ER-A6IN	SRN inline I/F
8	ON-LINE SYSTEM	ER-A5RS	2ports RS232 I/F
9	CONTROL ROM	ER-A61R1	Control for ER-A6IN and ER-A5RS
10	PRESETS LOADER	ER-02FD	FD unit
11	CONNECTION CABLE	ER-A5CB	Loader cable
12	SLIP PRINTER	ER-31SP	
13	HAND SCANNER	ER-A6HS1	
14	KEY TOP KIT	ER-11KT6	1 x 1 key top
		ER-12KT6	1 x 2 key top
		ER-22KT6	2 x 2 key top
		ER-11DK6	1 x 1 dummy key
		ER-51DK6	1 x 5 dummy key

### 2. Service options

NO.	NAME	PARTS CODE	PRICE RANK	DESCRIPTION
1	SERVICE KEY	LKGIM7113RCZZ	AK	For the mode switch
2	DRIP-PROOF SWITCH COVER	GCOVB7047RCZZ	BA	
3	MODE KEY GRIP COVER	LKGIM7126RCZZ	AL	OPkey only
4	JOURNAL NEAR END SENSOR	DKIT-8643RCZZ	BG	
5	DRAWER FIXING KIT	DKIT-8633RCZZ	BE	
6	DRIP-PROOF KEYBOARD COVER	GCOVB7043RCZZ		

### 3. Service tools

NO.	NAME	PARTS CODE	PRICE RANK
1	EXPANSION PWB	CKOG-6708RCZZ	BU
2	SIO LOOP BACK CONECTOR	UKOG-6704RCZZ	AV
3	RS-232 LOOP BACK CONECTOR	UKOG-6705RCZZ	

### 4. Supplies

NO.	NAME	PARTS CODE	PRICE RANK	DESCRIPTION
1	ROLL PAPER	DPAPR1006CSZZ	AR	5rolls/pack
2	INK RIBBON	PRBN-6640RCZZ	AX	
3	INK FOR STAMP	UINK-1001CCZZ	AK	5cc

## CHAPTER 3. REMOVING THE MAIN DRAWER

### 1. Removing the main drawer.

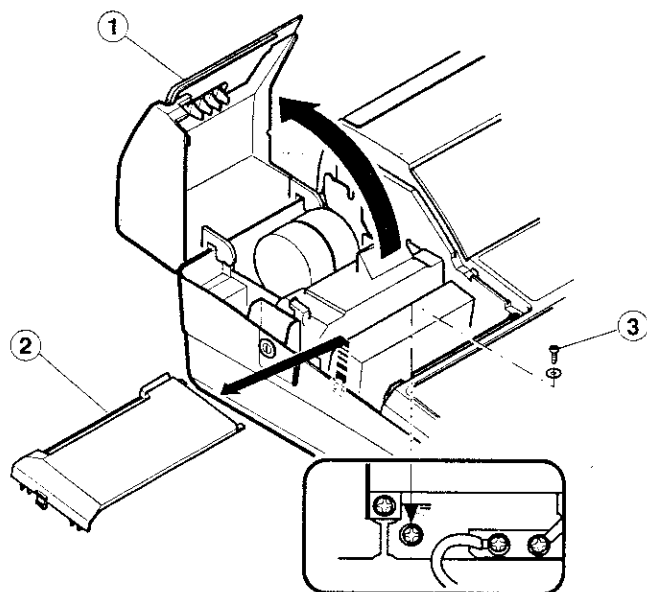


Fig. 1

- 1) Open the printer cover ①.
- 2) Remove the ribbon cover ②.
- 3) Remove the drawer fixing screw ③ (Self tap screw).

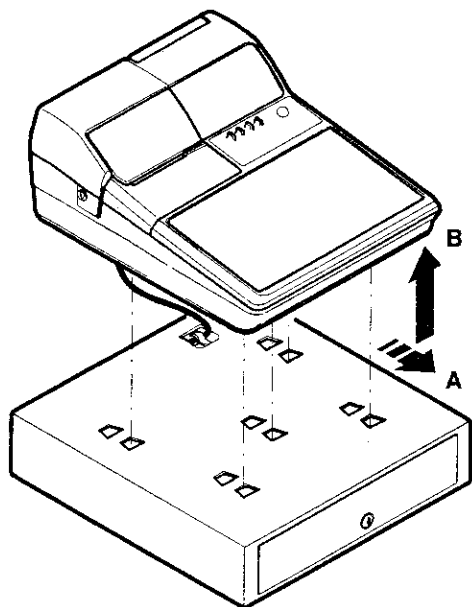


Fig. 2

- 4) Slide the main unit in the direction of the arrow A and lift it in the direction of the arrow B.

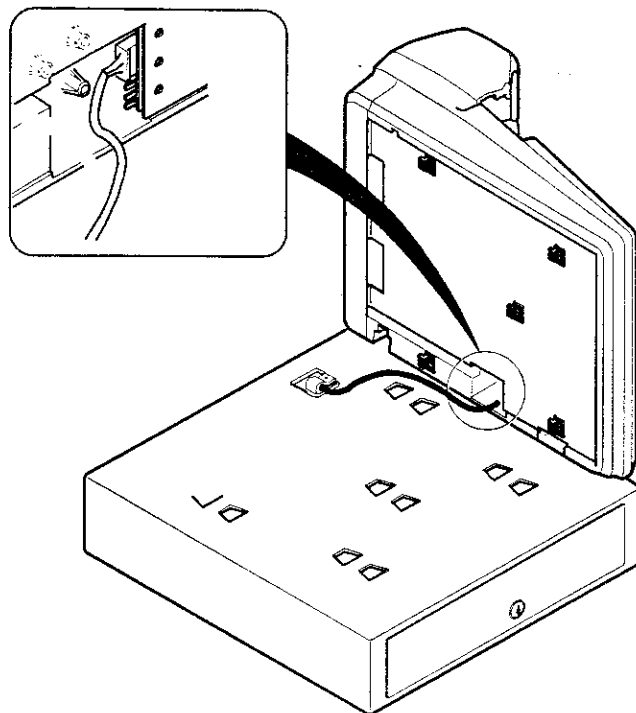


Fig. 3

- 5) Stand the main drawer sideways as illustrated above, and disconnect the drawer connector.

### 2. Replacing the main drawer

Install the main drawer in the reverse order of removing. Before installing, make sure that the connector is securely fastened.

### 3. Changing drawer position.

The position of the drawer on the main body can be changed by changing the holes into which the drawer is fixed. After changing the drawer position, fix the drawer securely with the drawer fixing screw (Self tap screw).

<< When shipping >>

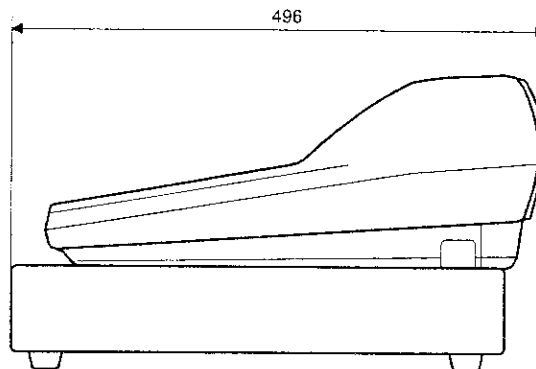


Fig. 4

<<When sliding backwards>>

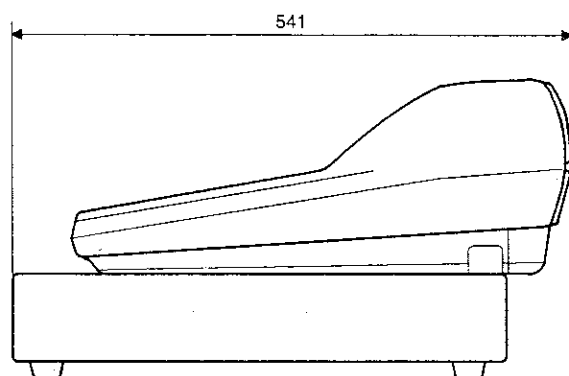


Fig. 5

## CHAPTER 4. REMOVING THE TOP CABINET

### 1. Removing the top cabinet

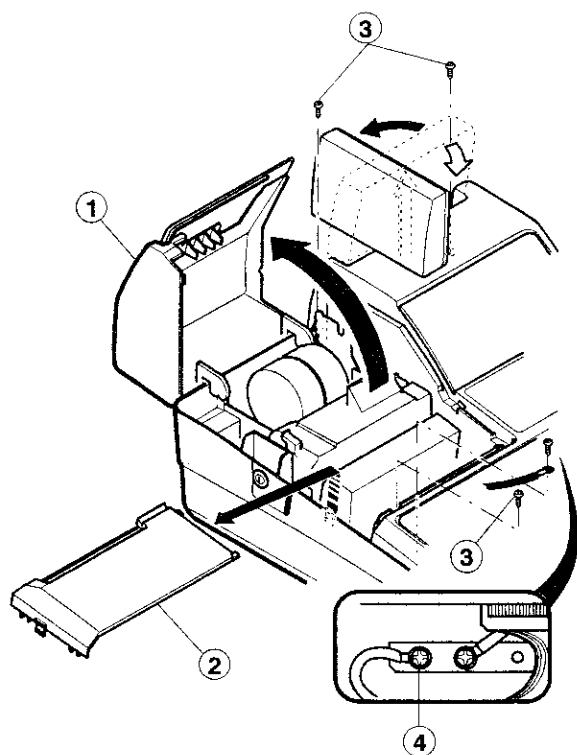


Fig. 1

- 1) Open the printer cover ①.
- 2) Remove the ribbon cover ②.  
Lift the left end of the ribbon cover and slide it to the left.
- 3) Lift the pop-up display and rotate as illustrated above.
- 4) Remove the three screws ③ suited on the lower cabinet.
- 5) Remove the grounding wire ④.

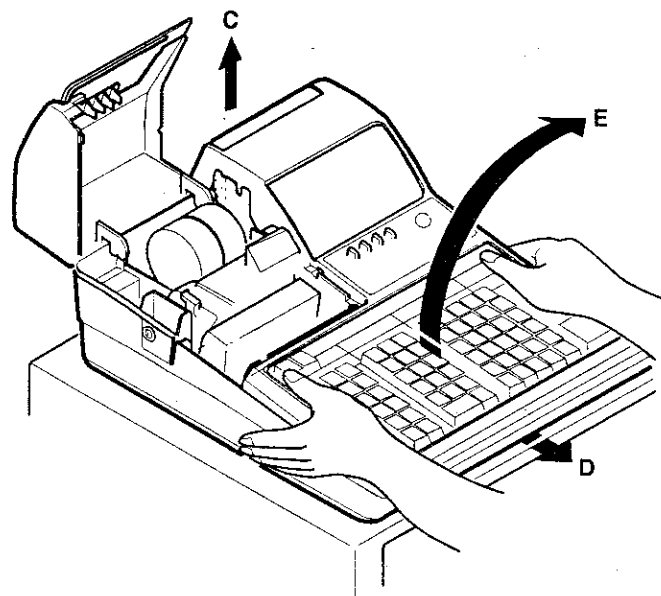


Fig. 2

- 6) Remove the top cabinet.  
As illustrated, lift the top cabinet in the direction of the arrow C, slide it in the direction of the arrow D and lift it in the direction of the arrow E.

### 2. Replacing the top cabinet

Install the top cabinet in the reverse order of removing. Before installing, make sure that each connector is connected securely and that the grounding wire is secured.

# CHAPTER 5. EXPANSION RAM CHIP (ER-01RA, ER-02RA) AND EXPANSION RAM BOARD (ER-01MB, ER-02MB)

## 1. Outline

The following expansion RAM chips are available for the ER-A610.

- ER-01RA: 32KB SRAM chip
- ER-02RA: 128KB SRAM chip
- ER-01MB: Expansion RAM board  
Standard 128K bytes  
Max. 512K bytes (a maximum of three ER-02RA  
RAM chips can be mounted on the RAM board.)
- ER-02MB: Expansion RAM board  
1 M bytes

Note: Either the ER-01RA or the ER-02RA can be mounted on the main PWB of the ER-A610. When installing the ER-01MB or ER-02MB the ER-02RA must be mounted on the main PWB of the ER-A610.

## 2. Installation procedure

Before working on the installation, turn off the power switch on the ECR and unplug the AC cord from the AC outlet.  
Also save the memory contents via the serial interface before proceeding to the installation work.

### ① ER-01RA and ER-02RA

- 1) Remove the top cabinet.
  - 2) Insert the expansion RAM chip onto the socket RAM2 on the main PWB. (Fig. 1, 2)
- <<ER-01RA>> : 28pins.

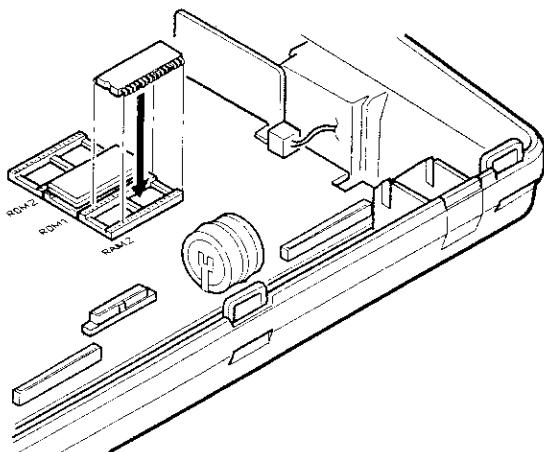


Fig. 1

<<ER-02RA>> : 32pins.

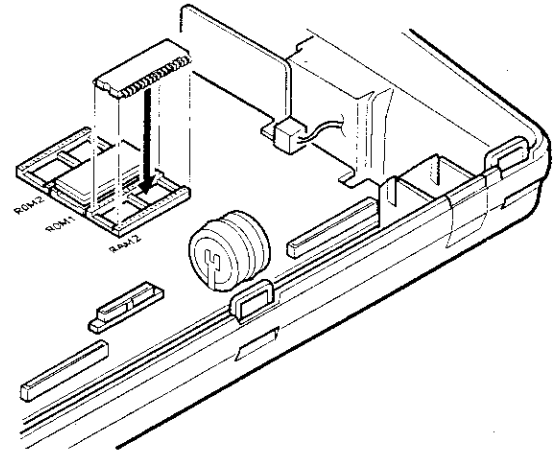


Fig. 2

The number of pins are different between the ER-01RA (28 pins) and the ER-02RA (32 pins). Observe the correct position for insertion of the chip. (Fig. 1, 2)

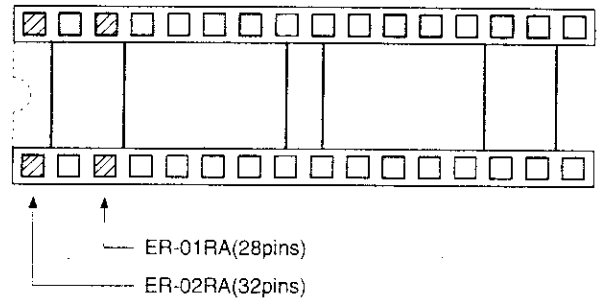


Fig. 3

- 3) Install the top cabinet.
- 4) Master reset the ER-A610.
- 5) Load the data in memory which had been saved.
- 6) Program reset the ER-A610.

### ② ER-01MB and ER-02MB

- 1) Remove the top cabinet.
- 2) Mount the spacer ① on the main PWB unit and place the ER-01MB or ER-02MB expansion RAM board on the RAM connector and the spacer. (Fig. 4)

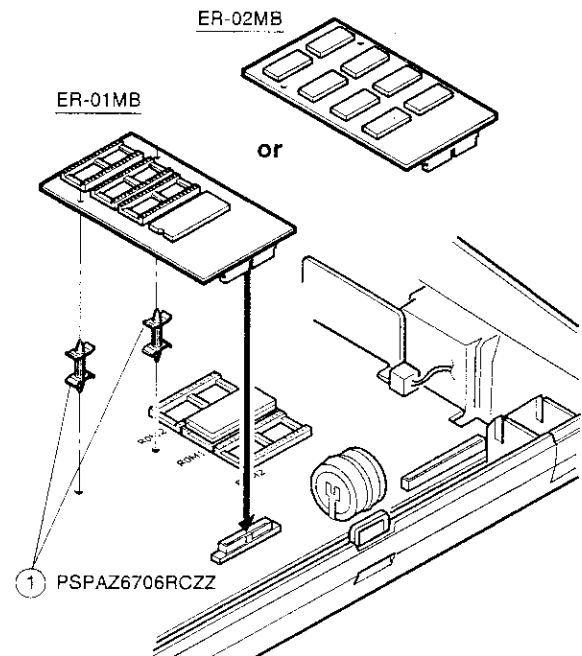


Fig. 4

NOTE: When attaching the ER-01MB/02MB, attach the ER-02RA to the main PWB.

3) Replace the top cabinet.

### ③ Mounting the ER-02RA on the ER-01MB

1) Remove the top cabinet.

2) Install the ER-02RA on the ER-01MB above the main PWB. Mount the ER-02RA in the RAM sockets as indicated below. (Fig. 5)

- 1st chip in the RAM2 socket
- 2nd chip in the RAM3 socket
- 3rd chip in the RAM4 socket

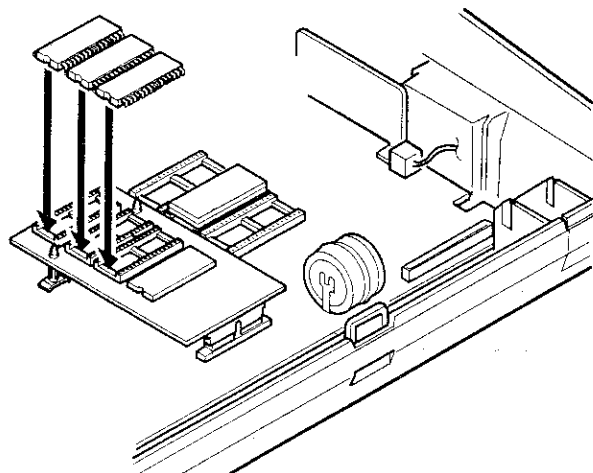


Fig. 5

Note: 1) When inserting the ER-02RA into the IC socket on the ER-01MB, hold the ER-01MB by hand to prevent it from warping.

3) Replace the top cabinet.

## 3. Operation test

### 1) Option RAM test

① Key operation

20X → **TL** (X: 0-6)

JOB #NO.	RAM NO.	Memory to be checked	Address area to be checked
200	Option RAM (main)	ER-01RA	1E0000H ? 1E7FFFH
201	Option RAM (main)	ER-02RA	1E0000H ? 1FFFFFH
202	ER-01MB RAM1	ER-02RA+ER-01MB	1E0000H ? 21FFFFH
203	ER-01MB RAM2	ER-02RA+ (ER-01MB+ER-02RA)	1E0000H ? 23FFFFH
204	ER-01MB RAM3	ER-02RA+ (ER-01MB+ER-02RAX2)	1E0000H ? 25FFFFH
205	ER-01MB RAM4	ER-02RA+ (ER-01MB+ER-02RAX3)	1E0000H ? 27FFFFH
206	ER-02MB	ER-02RA+ER-02MB	1E0000H ? 2FFFFFH

### ② Content

The following check are performed for the optional RAM. Do not change the memory contents before and after this check JOB. The following process is performed for memory address to be checked.

PASS1: memory data save

PASS2: Data "00H" write

PASS3: Data "00H" read and comparison, data "55H" write

PASS4: Data "55H" read and comparison, data "AAH" write

PASS5: Data "AAH" read and comparison

PASS6: Memory data restore

If a compare error is found in the check sequence from PASS1 to PASS6, error print (error code E1) is performed. If there is no error found to the end of the last address, the operation is completed normally.

Then the following address check is performed by judging the option chip to be integrated. The check point addresses are as follows:

Check Address	JOB200	JOB201	JOB202	JOB203	JOB204	JOB205	JOB206
1E0000H	○	○	○	○	○	○	○
1E0001H	○	○	○	○	○	○	○
1E0002H	○	○	○	○	○	○	○
1E0004H	○	○	○	○	○	○	○
1E0008H	○	○	○	○	○	○	○
1E0010H	○	○	○	○	○	○	○
1E0020H	○	○	○	○	○	○	○
1E0040H	○	○	○	○	○	○	○
1E0080H	○	○	○	○	○	○	○
1E0100H	○	○	○	○	○	○	○
1E0200H	○	○	○	○	○	○	○
1E0400H	○	○	○	○	○	○	○
1E0800H	○	○	○	○	○	○	○
1E1000H	○	○	○	○	○	○	○
1E2000H	○	○	○	○	○	○	○
1E4000H	○	○	○	○	○	○	○
1E8000H	—	○	○	○	○	○	○
1F0000H	—	○	○	○	○	○	○
200000H	—	—	○	○	○	○	○
210000H	—	—	○	○	○	○	○
220000H	—	—	—	○	○	○	○
240000H	—	—	—	—	○	○	○
260000H	—	—	—	—	—	○	○
280000H	—	—	—	—	—	—	○

"○" in the table shows that the check point address in the horizontal column is valid, and "—" shows it is invalid.

When any error occurs in this address check, error code E2 is printed.

③ Check the following items.

Check the termination print.

④ Test termination

The test terminates after printing the termination printout.

Termination print

Normal termination	20X
Abnormal termination	EY----- 20X
	*****

20X: JOB # (200-206)

Y: Error code

Note: When an error occurs error print is performed and the error address is displayed in position \*\*\*\*\* in hexadecimal.

## 2) Option RAM address test

### ① Key operation

30X → **TL** (X: 0~6)

JOB #NO.	RAM NO.	Memory to be checked	Address area to be checked
300	Option RAM (main)	ER-01RA	1E0000H 1E7FFFH
301	Option RAM (main)	ER-02RA	1E0000H 1FFFFFH
302	ER-01MB RAM1	ER-02RA+ER-01MB	1E0000H 21FFFFH
303	ER-01MB RAM2	ER-02RA+ (ER-01MB+ER-02RA)	1E0000H 23FFFFH
304	ER-01MB RAM3	ER-02RA+ (ER-01MB+ER-02RA×2)	1E0000H 25FFFFH
305	ER-01MB RAM4	ER-02RA+ (ER-01MB+ER-02RA×3)	1E0000H 27FFFFH
306	ER-02MB	ER-02RA+ER-02MB	1E0000H 2FFFFFH

### ② Functional description

The following check are performed for the optional RAM. Do not change.

Check Address	JOB300	JOB301	JOB302	JOB303	JOB304	JOB305	JOB306
1E0000H	○	○	○	○	○	○	○
1E0001H	○	○	○	○	○	○	○
1E0002H	○	○	○	○	○	○	○
1E0004H	○	○	○	○	○	○	○
1E0008H	○	○	○	○	○	○	○
1E0010H	○	○	○	○	○	○	○
1E0020H	○	○	○	○	○	○	○
1E0040H	○	○	○	○	○	○	○
1E0080H	○	○	○	○	○	○	○
1E0100H	○	○	○	○	○	○	○
1E0200H	○	○	○	○	○	○	○
1E0400H	○	○	○	○	○	○	○
1E0800H	○	○	○	○	○	○	○
1E1000H	○	○	○	○	○	○	○
1E2000H	○	○	○	○	○	○	○
1E4000H	○	○	○	○	○	○	○
1E8000H	—	○	○	○	○	○	○
1F0000H	—	○	○	○	○	○	○
200000H	—	—	○	○	○	○	○
210000H	—	—	○	○	○	○	○
220000H	—	—	—	○	○	○	○
240000H	—	—	—	—	○	○	○
260000H	—	—	—	—	—	○	○
280000H	—	—	—	—	—	—	○

"○" in the table shows that the check point address is valid, and "—" shows that it is invalid.

### ③ Check the following items.

Check the termination print.

### ④ Test termination

The test terminates after printing the termination printout.

Termination printout

Normal termination

Abnormal termination

EY-----

30X

30X

\*\*\*\*\*

30X: JOB# (300~306)

Y: Error code

Note: When an error occurs error print is performed and the error address is displayed in position \*\*\*\*\* in hexadecimal.

## CHAPTER 6. CONTROL ROM (ER-A61R1)

### 1. Outline

The ER-A61R1 is the control ROM used for the following options of the ER-A610.

The control ROM (ER-A61R1) must be installed when any of the following options is used.

ER-A61N: SRN inline I/F

ER-A5RS: RS232 I/F

### 2. Installation procedure

Before working on the installation, turn off the power switch on the ECR and unplug the AC cord from the AC outlet.

Also save the memory contents via the serial interface before proceeding to the installation work.

1) Remove the top cabinet.

2) Insert the control ROM in the IC socket ROM2 on the main PWB (Fig. 1).

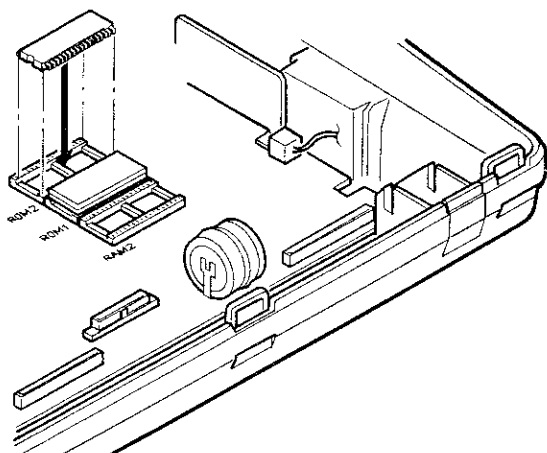


Fig. 1

### 3. Operation test

#### 1) Option ROM test

① Key operation:

400 → TL

② Functional description:

A sum check is done for the option ROM (Address hex C80000H thru CBFFFFH.)

DOT DISPLAY:

O P T R O M

③ Check the following items:

Check the termination printout.

④ Test termination:

The test terminates after printing the termination printout.

Termination printout

Normal termination			400
O-ROM	<u>27020*****</u>		
	*****		
E-----			400
O-ROM	27020*****		
	*****		

Note: "\*\*\*\*\*" means the ROM version number.

The underlined section (10 bytes) of code table is provided in the ROM as a standard and the table content is always printed.

The table position is the upper 10 digits of the ROM address.

The check sum correction address is the last address -0FH.

Note: In the case of the ER-ROM, the ROM version number is displayed in the upper and the lower stages.

In the case of the MASK-ROM (future specification), the MASK ROM code is displayed in the upper stage, and the ROM version number is displayed in the lower stage.

		400
O-ROM	27020RAP1A	
	RAP1A	

## CHAPTER 7. IN-LINE I/F (ER-A6IN) AND RS232 I/F (ER-A5RS)

### 1. Outline

The ER-A6IN and ER-A5RS are interface PWB options for the ER-A610. The control ROM (ER-A61R1) must be installed in order to use this PWB options.

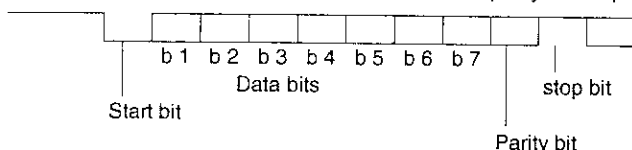
Refer to the programming manual for system setup and configure the correct setting appropriate to the devices selected.

#### ER-A6IN

- 1) Transmission Method
  1. Carrier sense multiple access with collision detect (CSMA/CD)
  2. Single channel, half duplex
  3. High level data link controller (HDLC)
- 2) Transmission Medium
  1. Topology: Common Bus System
  2. Coaxial cable RG-58/u
- 3) Transmission Speed  
480KBPS/1MBPS (Selectable) ... SRV mode JOB#922.
- 4) Data Transfer Method  
Packet-data transfer method  
Data side of 1 packet is MAX. 270 Byte.
- 5) Maximum Length of Transmission Cable  
1000m (3281 ft) . . . trunk cables + branch cables; however, branch cable length is 10m (5m x 2) for each terminal.
- 6) Max Terminals  
16 Terminals max. (15 slaves, 1 master)

#### ER-A5RS

- 1) Online interface
  - a) Interface : RS232
  - b) Duplex type : Half-duplex/Full-duplex
  - c) Line configuration : Direct connection/Modem connection
  - d) Data rate : 9600, 4800, 2400, 1200, 600 and 300 bps  
(Programmable)
  - e) Synchronizing mode : Asynchronous
  - f) Parity check : Vertical parity check (odd)
  - g) Code : ASCII
  - h) Bit sequence : LSB first
  - i) Data format : 1 start bit + 7 dat bits + 1 parity + 1 stop bit



- j) Protocol : Polling/selecting (Simple procedure)
- k) Transmission line:
  - Cable: Shielded cable
  - Connector: D-sub 9 pin (female type) connector  
(ECR side) Inch pitch (4-40 UNC) lock screw
  - Connector cover: Shielded cover

### 2. Components list

#### ER-A6IN

NO	NAME	PARTS CODE	Q'ty
1	PWB UNIT	CPWBX7317RC01	1
2	PWB BRACKET	LANGT7466RCZZ	1
3	CONNECTOR BRACKET	LANGT7510RCZZ	1
4	SCREW (FOR HOLDING OF THE PWB AND PWB BRACKET)	LX-BZ6665RCZZ	2
5	SCREW FOR : • PWB ANGLE AND PWB ANGLE • PWB ANGLE AND MAIN CHASSIS • GND WIRE	LX-BZ6774RCZZ	5
6	WIRING TIE	LBNDJ2004SCZZ	1
7	SPACER	PSPAN7039XCZZ	1
8	FERRITE CORE (FOR INTERNAL CABLE)	RCORF6666RCZZ	1
9	INTERNAL CABLE	QCNW-6856RCZZ	1
10	BNC-T CONNECTOR	QCNC-6811RC0C	1

#### ER-A5RS

NO	NAME	PARTS CODE	Q'ty
1	PWB UNIT	CPWBS7292RC01	1
2	BRACKET	LANGT7466RCZZ	1
3	SCREW (FOR PWB AND BRACKET)	LX-BZ6665RCZZ	2
4	SCREW (FOR HOLDING OF THE PWB BRACKET, AND BRACKET TO BRACKET)	LX-BZ6774RCZZ	3
5	SCREW (FOR HOLDING OF THE RS232 CABLE CORE)	XHBSD30P08000	2
6	WIRE TIE	LBNDJ2004SCZZ	1
7	CLAMP (FOR RS232 CABLE)	LHLDW6814RCZZ	2
8	SPACER	PSPAN7039XCZZ	1
9	FERRITE CORE (FOR EXTERNAL CABLE)	RCORF6658RCZZ	2



### 3. Installation procedure

1) Connect the internal cable to the interface PWB unit.

① In-Line cable

① Connect the branch cable ① to the BNC-T connector ②. (Fig. 1)

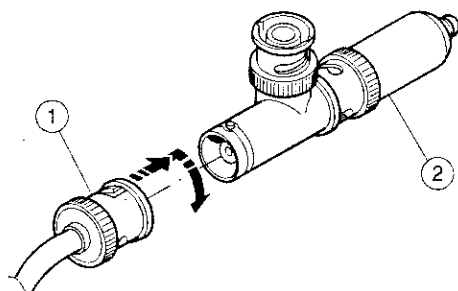


Fig. 1

② Connect the BNC-T connector to the internal cable. (Fig. 2)

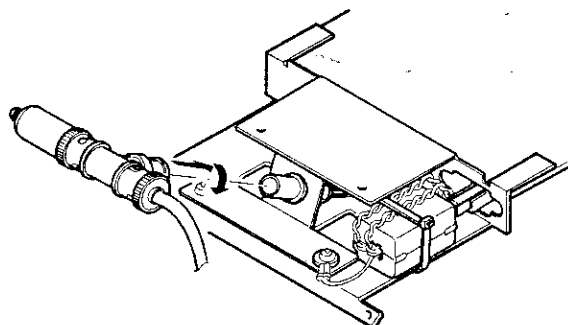


Fig. 2

② RS232 cable

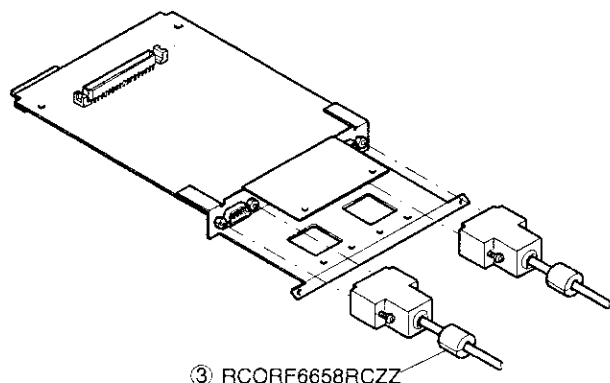


Fig. 3

- Be sure to install the core ③ (RCORF6658RCZZ) on RS-232C cable. (Fig. 3)

2) To install two interface PWB's, follow the next steps. (When installing the ER-A61N and the ER-A5RS)

① Insert two spacers ③ and connect the connectors of the interface PWB together (Fig. 4).

\* Make sure the spacer is mounted properly to insure proper connection.

② Secure the brackets ④ with the screws ⑤ and ⑥ (LX-BZ6774RCZZ: Self tap screw). (Fig. 4)

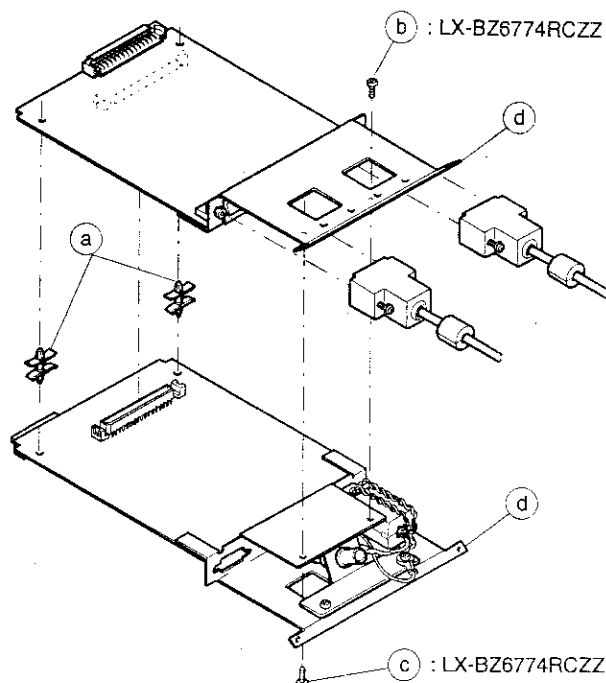


Fig. 4

3) Remove two rear cover holding screws and remove the rear cover ④ (Fig. 5).

\* The interface PWB needs to be inserted into the left side slot as seen from rear.

\* Tilt up the popup display when removing the rear cover.

4) Break open the knockout ⑤ of the rear cover ④ (Fig. 5). After breaking open the knockout ⑤, file off the new hole.

5) Insert the interface PWB ⑥ onto the connector of the main PWB ⑦, and fasten the bracket to the main chassis using screws ⑧ (LX-BZ6774RCZZ: Self tap screw) (Fig. 5).

\* Insert both sides of the interface PWB along the guides of the bottom cabinet.

- 6) Route the external cable ⑨ through the hole and fasten the rear cover (Fig.5)

<<Left side>>

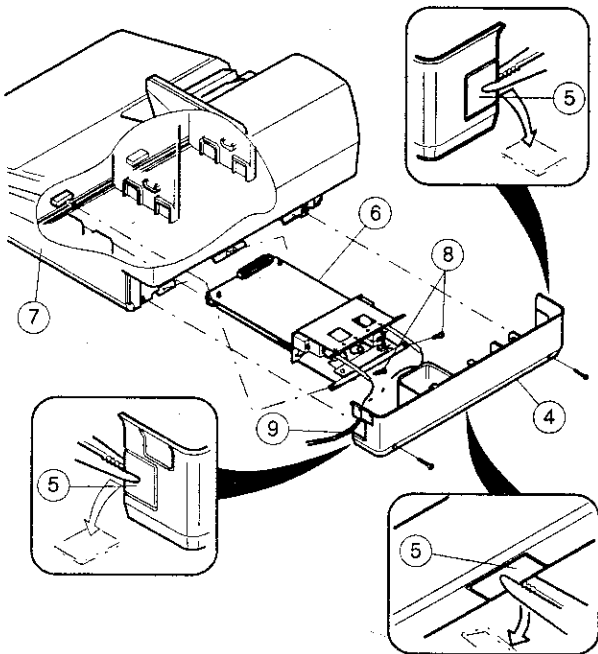


Fig. 5

## 4. External cable routing

In the ER-A610, option cables can be pulled out from three points in the rear cover of the body. Refer to figs. 5, 6, 7 and 8.

- 1) The picture below shows how to pull out the cables from the left side. (Fig. 6)

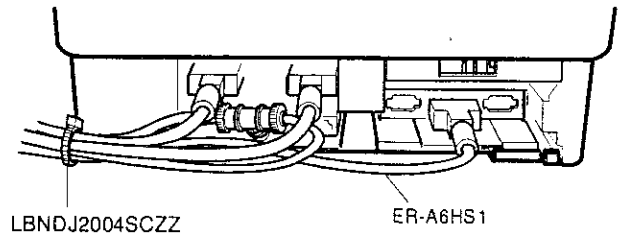


Fig. 6

- 2) The picture below shows how to pull out the cables from the right side. (Fig. 7)

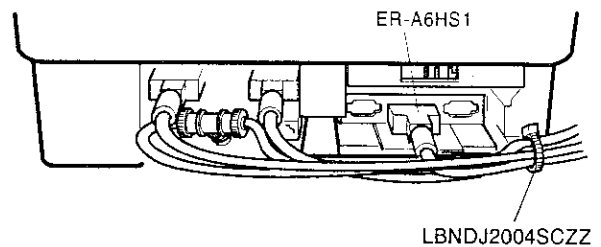


Fig. 7

- 3) The picture below shows how to pull out the cables from the center. (Fig. 8)

\* To pull out the cable from the center, slide the drawer backwards.

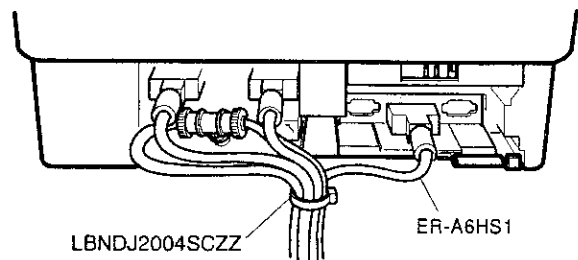


Fig. 8

## 5. Physical Organization

The branch cable is not included in the standard accessories of the ER-A61N. Please order with the following code.

PARTS CODE	PRICE RANK	DESCRIPTION
QCNW-6835RCZZ	BM	Branch cable

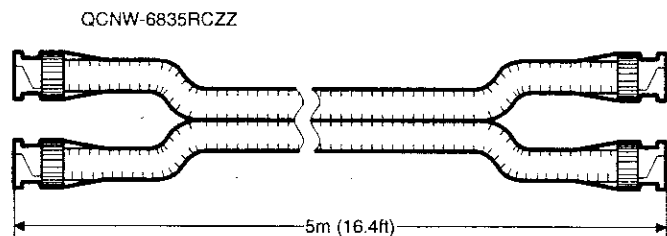


Fig. 9

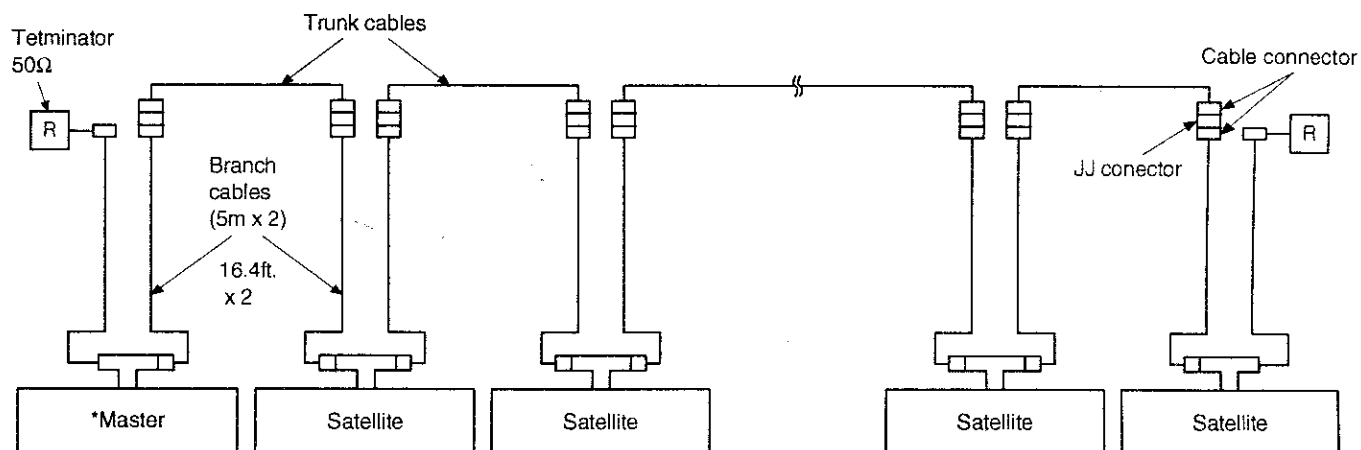


Fig. 10 Physical organization

\*NOTE: The master can be located anywhere within the SRN (IRC) network configuration.

## 6. Operation test

Please, refer to service manual. (CODE:00ZERA61VOSME)

## CHAPTER 8. REMOTE DRAWER (ER-03DW)

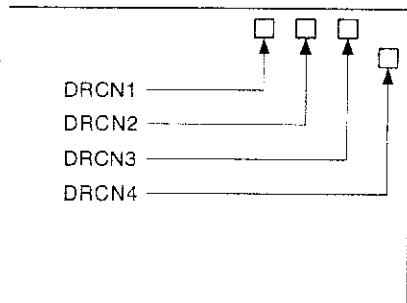
### 1. Outline

The ER-03DW is a remote drawer, and max. three units of the ER-03DW can be connected to the main body.

- Drawer connectors

The main PWB is equipped with four drawer connectors as standard provision.

DRCN1: For an option drawer



DRCN2: For the first remote drawer

DRCN3: For the second remote drawer

DRCN4: for the third remote drawer

### 2. Installation procedure

- 1) The remote drawer cable ① and grounding wire must be secured using the cable clamp ② and the screw ③ (XUBSD30P08000) comes with the product. (Fig. 4)
- 2) Put the grounding wire of the remote drawer into the screw hole in the lower cabinet and fasten it with the screw ③. (Use the holes ① and ② in the illustration. Never use the hole ③. If the third and fourth drawers are to be added, share the holes ① and ② among the drawers.) (Fig.4)

**Note:** If it is feasible to directly connect the ground strap to the remote drawer, it must be connected to ground directly, not to the ECR. If it is not feasible at all, it must be connected to the ECR as illustrated.

- 3) To install the ground wire, tighten the wire holder together on the rear surface of the ER-03DW. (Fig.4)

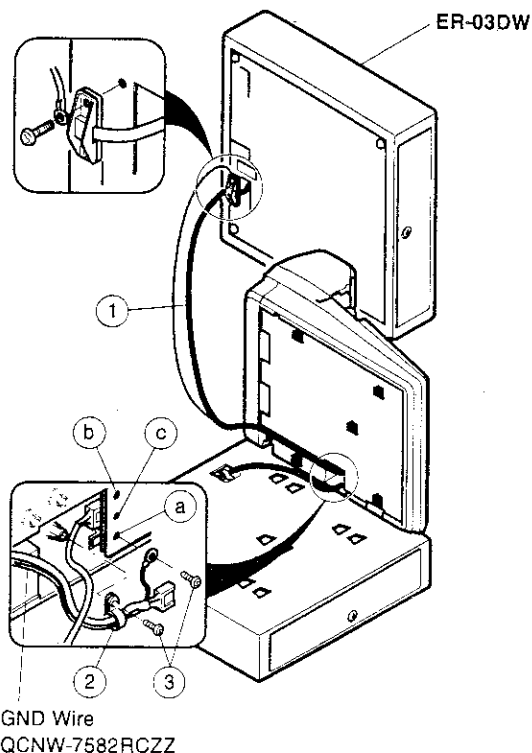


Fig. 4

- 4) Attach the ferrite core (RCORF6666RCZZ) to the drawer cable. (Use the accessory ferrite cores of the ER-A670 for the second drawer.) For the third and more drawers, optional Ferrite cores are required. (Fig. 5)

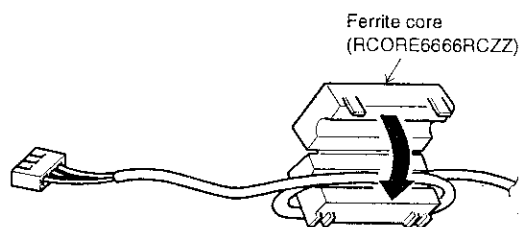


Fig. 5

- 5) Remove two rear cover holding screws ④ and remove the rear cover ⑤ (Fig.6).  
\* Raise up the popup display when removing the rear cover.
- 6) Break open the knockout ⑥ of the rear cover ⑤ using the tool (Fig.6).  
After breaking open the knockout ⑥, file off the sides of the new hole.

- 7) Route the option drawer cable ① through the hole (A) and fasten the rear cover (Fig.6).

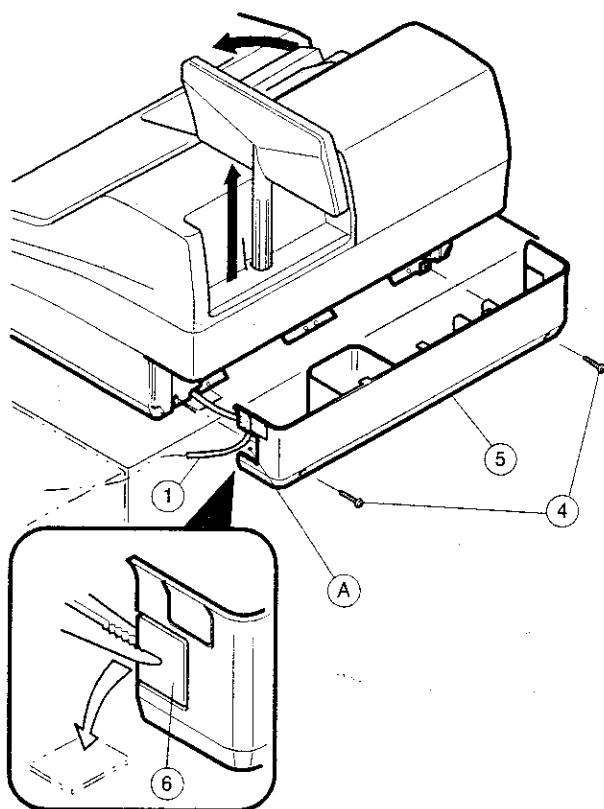


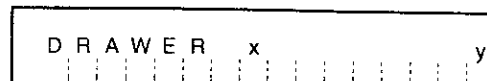
Fig. 6

- 8) Replace the drawer.
- 9) CAUTION: The drawer unit should be securely fitted to the supporting platform to avoid instability with the drawer open.

### 3. Operation test

- 1) Key operation  
110~113 → [TL]
- 2) Function description  
The drawer indicated by the job number is opened to check the proper action.  
Drawer opened: O indicated  
Drawer closed: C indicated  
110: Drawer-1: Standard drawer  
111: Drawer-2: Remote drawer  
112: Drawer-3: Remote drawer  
113: Drawer-4: Remote drawer

DOT DISPLAY:



x: 1~4  
y: 0=Drawer opened  
C=Drawer closed

- 3) Check the following items: The following are tested.  
a) Check opening of the specified drawer.  
b) Check the display indication when the drawer is open and close.
- 4) Any key depression terminates the test with the termination print.

11 X	
Test Termination Print	X: 0~3

## CHAPTER 9. SLIP PRINTER (ER-31SP)

### Caution for Germany:

Beim Anschalten dieses Gerätes an Datenverarbeitungsanlagen ist sicherzustellen, daß die Gesamtanlage den jeweiligen technischen Vorschriften entspricht.

### 1. Outline

When connected to the ER-A610 cash register, the ER-31SP slip printer can be used to print guest checks in restaurants or ledger cards in retail shops.

This printer has the following two functions.

#### ① Slip printing

- Buffer printing system: This system allows transaction data to be printed by pressing the SLIP key after a transaction entry has been made.

#### ② Slip paper feeding

This function enables the line to start slip printing at to be changed by programming.

### 2. Components list

NO.	Description	Parts code	Q'ty
1	Slip printer I/F board	CPWBN7070RC03	1
2	Slip angle	LANGK7273RCZZ	1
3	Connector angle	LANGK7276RCZZ	1
4	Core	RCORF6652RCZZ	1
5	Core	RCORF2318RCZZ	1
6	Core	RCORF6638RCZB	1
7	Screw	LX-BZ6706RCZZ	1
8	Screw	XUPSD30P10000	3
9	Screw	XBPSD30P06KS0	3
10	Screw	LX-BZ6774RCZZ	3
11	Screw	XEBSD30P08000	2
12	Screw	XHBSD30P08000	2
13	Earth wire	QCNW-7129RCZZ	1
14	Band	LBNDJ0004UCZZ	2
15	Cable clamp	LBNDJ2003SCZZ	1
16	PWB fixing bracket	LANGT7480RCZA	1
17	Eath wire	QCNW-7643RCZZ	1

### 3. Installation procedure

- 1) Remove the top cabinet.
- 2) Break open the knockout (A) of the lower cabinet with a tool and file it. Especially sections (B) and (C) must be filed deliberately because the bracket is in contact with them. (Fig. 1)

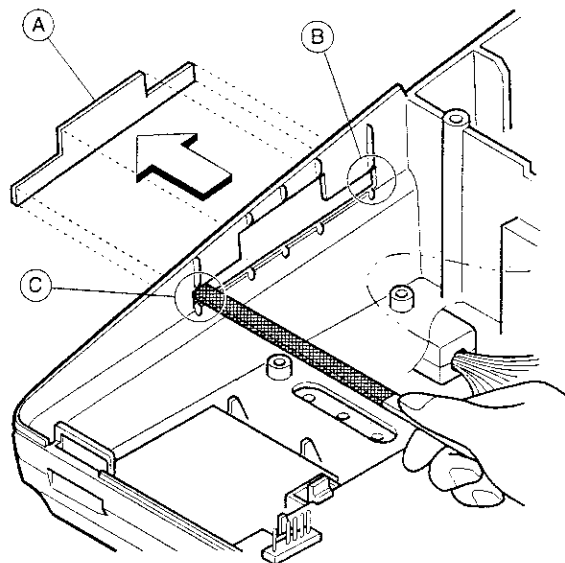


Fig. 1

- 3) Attach ring core (2) (RCORF6652RCZZ) and ferrite core (3) (RCORF2318RCZZ) to I/F PWB (1) 5 pin cable, and attach ring core (4) (RCORF6656RCZZ) to 20 pin cable. When attaching the ring core, turn the cable once and fix with beads band (5). (Fig.2)

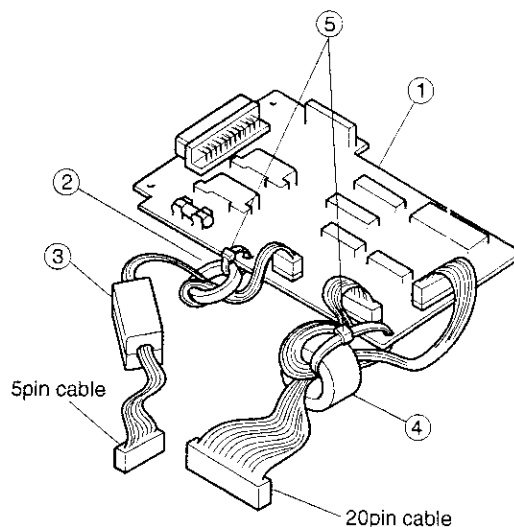


Fig. 2

- 4) Fix earth wire (6) to connector fixing bracket (7) and the main chassis with screws (a) (XBPSD30P06KS0) and (b) (LX-BZ6774RCZZ: Self tap screw). (Fig.3)
- 5) Fix earth wire (9) to PWB fixing bracket (8) and the main chassis with screws (1) (LX-BZ6774RCZZ: Self tap screw) and (6) (Fig.3)
- 6) Fix PWB fixing bracket (8) to the lower cabinet with screws (c) (XEBSD30P08000). (Fig.3)
- 7) Fix I/F PWB (1) between connector fixing bracket (7) and the PWB fixing bracket with screws (d) (XHBSD30P08000: Self tap screw), and fix the assembly to the lower cabinet with screw (e) (XUPSD30P100000). (Fig. 3)

- 8) Connect the 5 pin cable and the 20 pin cable of I/F PWB ① to the main PWB. (Fig.3)

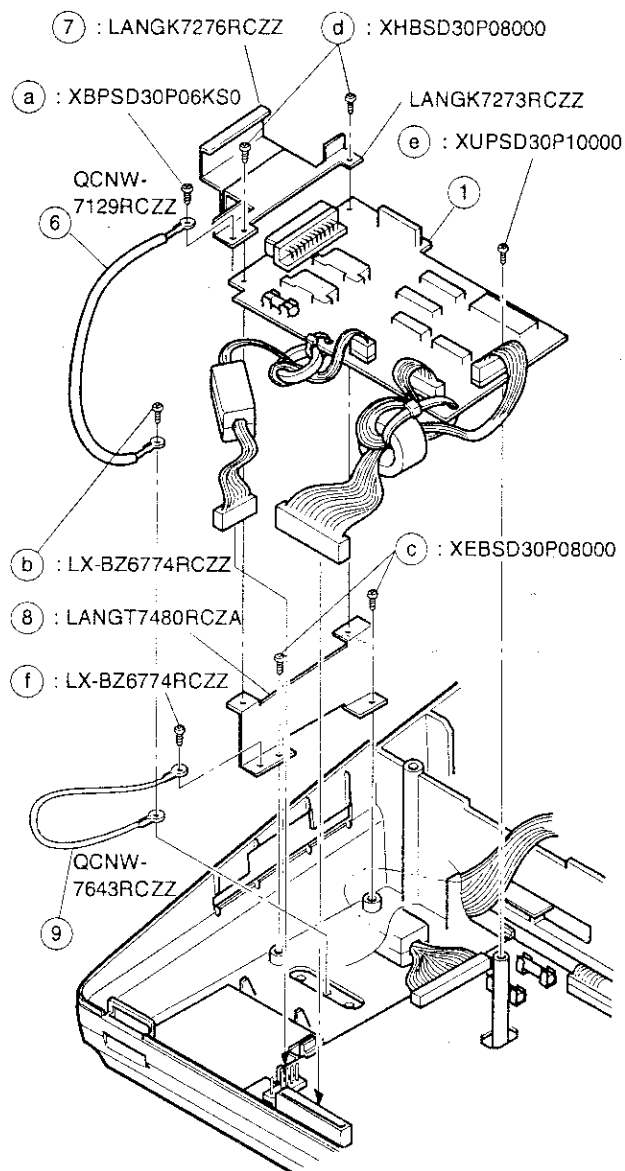


Fig. 3

- 9) Loosen the set-screw ② that serves to join the slip connector fixing bracket 1 and the connector fixing bracket 2 and connect the connector from the slip printer to the interface PWB unit. (See Figs. 4, 5 and 6.) (When connecting the connector to the interface PWB unit, make sure that the connector is locked with a click.)

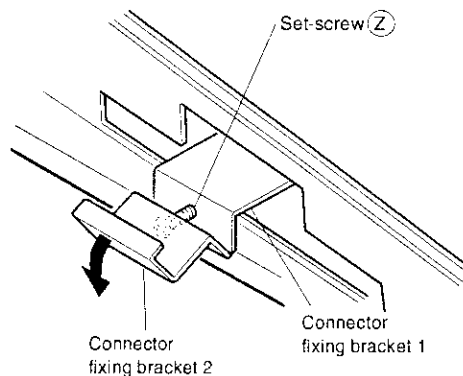


Fig. 4

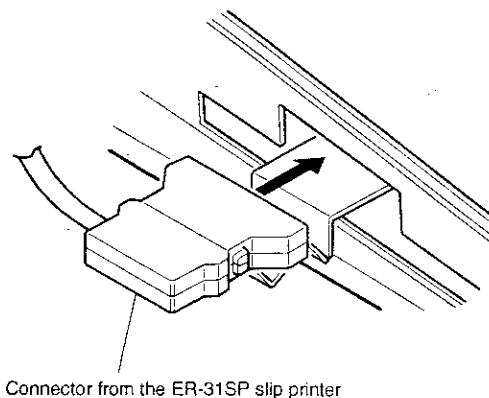


Fig. 5

- 10) Fix the set-screw ②. (See Fig. 6.)

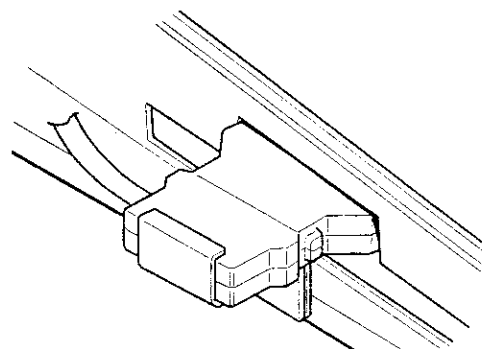


Fig. 6

- 11) Slip printer (ER-31SP) installation  
Attach the ferrite core (RCORF6638RCZZ) to the printer cable and attach the band (LBNDJ2003SCZZ) to fix the ferrite core. (See Fig. 7.)

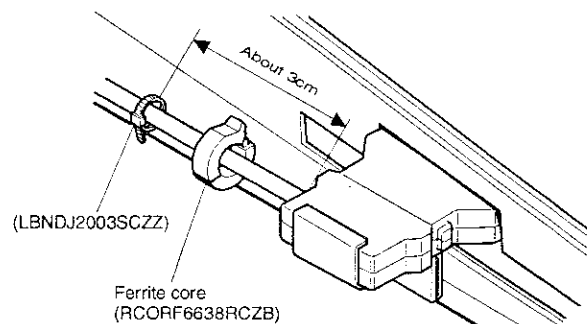


Fig. 7

#### 4. Remodeling procedures of the conventional model

To use the conventional ER-31SP produced before September 1992 in the ER-A610, the following parts and the I/F PWB must be remodeled.

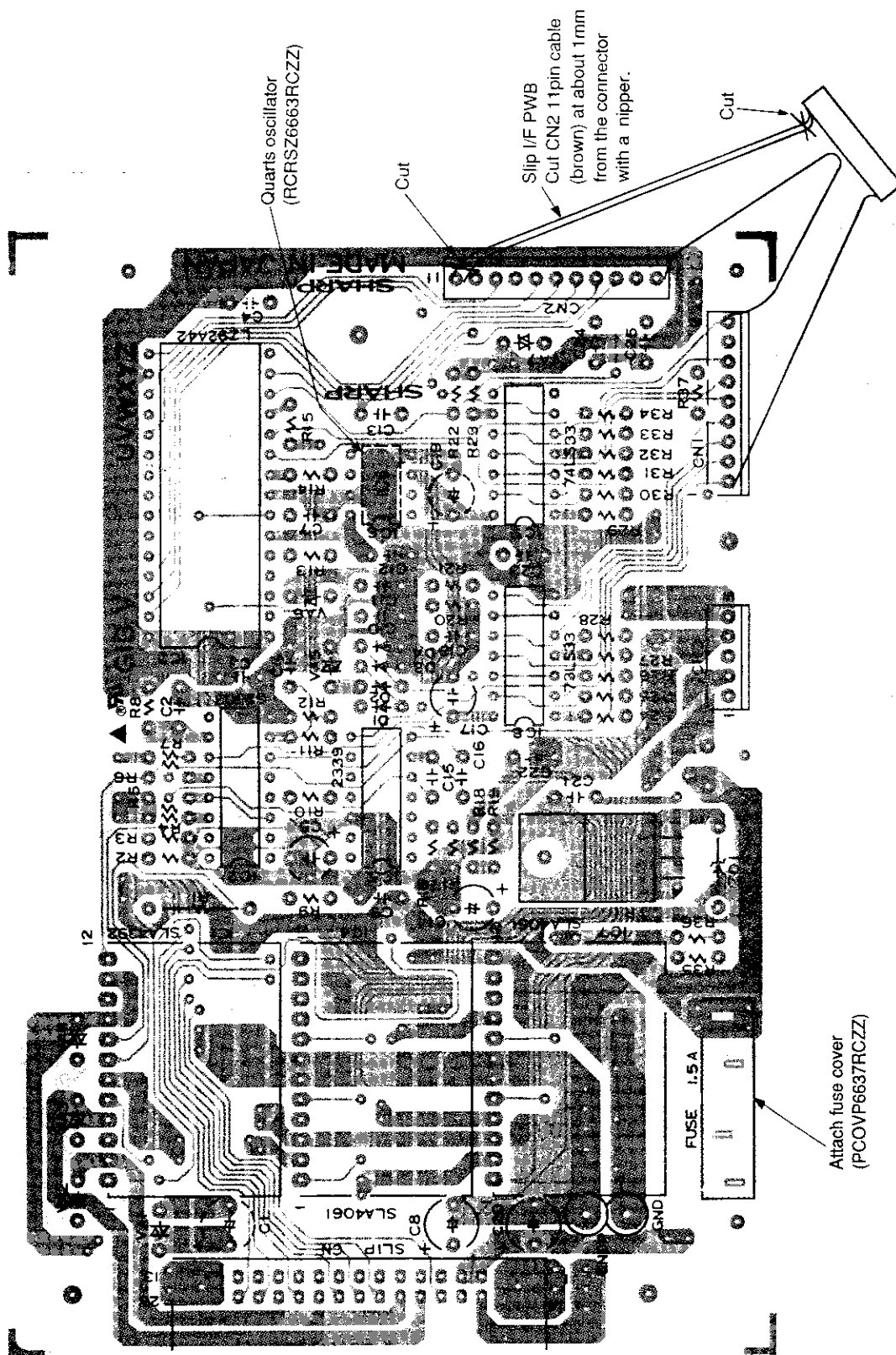
Part name	Part code	Q'ty
Quartz oscillator	R C R S Z 6 6 6 3 R C Z Z	1
Fuse cover	P C O V P 6 6 3 7 R C Z Z	1
PWB mounting angle	L A N G T 7 4 8 0 R C Z A	1
PWB protection sheet	P S H E P 6 7 3 4 R C Z Z	2
Screw	L X - B Z 6 7 7 4 R C Z Z	3
Screw	X E B S D 3 0 P 0 8 0 0 0	2
Screw	X H B S D 3 0 P 0 8 0 0 0	2
Eath wire	Q C N W - 7 6 4 3 R C Z Z	1

##### 1) I/F PWB remodeling

- ① Solder the quartz oscillator (RCRSZ6663RCZZ) to the IC6.
  - ② Attach the fuse cover (PCOVP6637RCZZ) to a fuse of 1.5A.
  - ③ Cut the both ends of the I/F PWB CN2 11 pin cable (brown) at about 1mm or less from the connector using a nipper.
- 2) Clean and remove oil from the sheet attaching section of the PWB mounting angle (LANGT7480RCZA) with alcohol. Fit the angle hole with the hole in the PWB protection sheet (PSHEP 6734RCZZ) and attach them together.
- 3) Attach according to the installation procedure.



# ER-31SP PWB LAYOUT

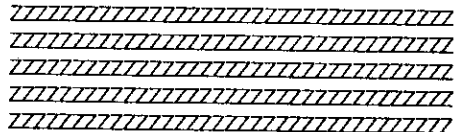


## 5. Operation test

### ① Slip printer (M-240) test-1

- 1) Key operation  
As slip must be set on the print table.  
103 → [TL]
- 2) Functional description  
Regardless of paper setting, 35 digits to "Z" are printed on five lines, then the printer stops after releasing the paper.
- 3) Check the following items:
  - a) Print starting position must line up in the same column.
  - b) Check the print quality.
  - c) Make sure that the paper is released at the termination.

<Print sample>



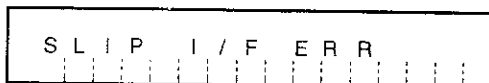
- 4) Test termination  
The test terminates automatically. If the paper release lever is not up, perform JOB#107 BTF, IFV test to release the paper.

If the ER-31SP (printer and I/F PWB unit) is not connected when performing this test, the following error display is made.

To cancel the error state, press any key or shift the mode key position, and the R/J printer will print the error print, terminating the operation.

Error display:

DOT DISPLAY:



Error print:

R/J printer:

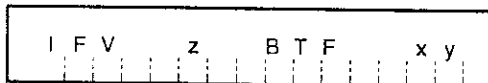
E----

103

### ② BOF, TOF and IFV test

- 1) Key operation  
107 → [TL]
- 2) Functional description  
After releasing the paper, the state of BOF, TOF and IFV sensor are sensed and displayed.
- 3) Check the following items:  
BOF, TOF: Check the paper set condition.  
IFV: Check the connection of the ER-31SP slip printer and slip printer interface.  
Check the on and off actions.

DOT DISPLAY:



x: State of IFV  
y: State of the BOF sensor  
z: State of the TOF sensor

Display	x/y	Description
IFV	O	Slip printer or slip printer interface not in connection
	C	Slip printer or slip printer interface in connection
BOF	O	Slip paper not detected
	C	Slip paper detected
TOF	O	Slip paper not detected
	C	Slip paper detected

#### 4) Test termination

Any key depression terminates the test with termination print.

107

Test termination print

Note 1: This test requires connection of the slip printer and the slip printer I/F. If they are not connected, "SLIP I/F ERR" occurs.

Note 2: Before turning ON/OFF the connector in the IFV check, set the mode to any mode other than SRV mode and turn off the power.

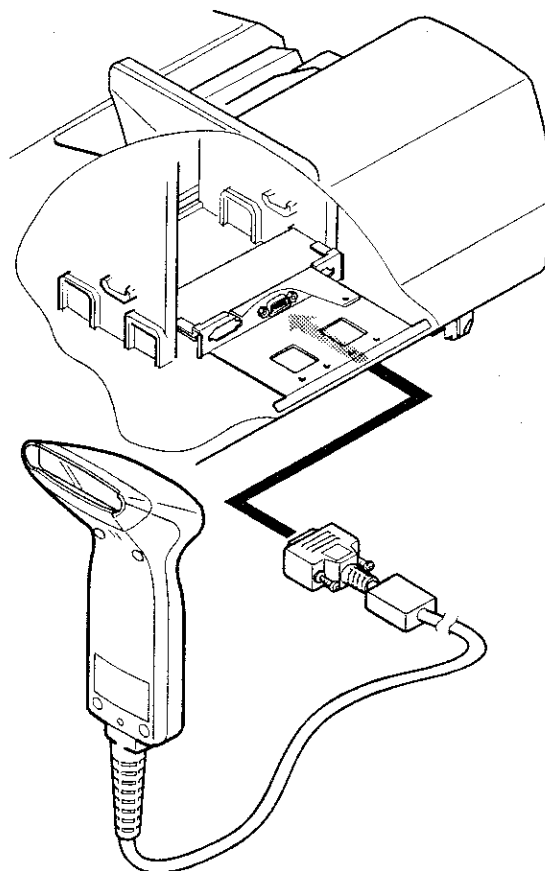
## CHAPTER 10. HAND SCANNER (ER-A6HS1)

### 1. Outline

The ER-A6HS1 is a barcord reader option.

### 2. Installation

- 1) Remove the rear cover.
- 2) Connect the ER-A6HS1 connector to the scanner connector.



Note:

- \* Be sure to turn off the power before installing the ER-A6HS1.
- \* Channel No. is set to CH1 and Cf signal is set to 5V initially before shipment. The ER-A6HS1, therefore, can be operated on installation.

## CHAPTER 11. JOURNAL NEAR END SENSOR (DKIT-8643RCZZ)

The DKIT-8643RCZZ has one more screw (LX-BZ6773RCZZ) than with the previous DKIT-8226RCZZ.

### 1. Parts list

KIT CODE : DKIT-8633RCZZ

No.	Parts code	Description	Price rank	Q'ty
1	DUNTK8296RCZZ	Near end sensor and 2-pin connector	BC	1pc.
2	LX-BZ6773RCZZ	Screw (Self tap screw)	AA	1pc.
3	QCNW-7049RCZZ	Ground wire	AD	1pc.
4	XBPSD30P04KSO	Screw	AA	1pc.
5	XBPSD40P06KSO	Screw	AA	1pc.
6	XWHS30-05080	Washer	AA	1pc.

### 2. Installation procedure

#### 1) Protecting data

If there is no need of saving the data, you may proceed to a next steps without executing this step.

The contents of the memory of the ER-A610 to be installed with the option must be saved in the data saving unit consisting of the ER-A610 and ER-02FD.

#### 2) Removing the cabinet

#### 3) Removing the main PWB

#### 4) Installing parts on main PWB (Fig. 1)

Install and solder the 2-pin connector on the main PWB (Fig. 1)

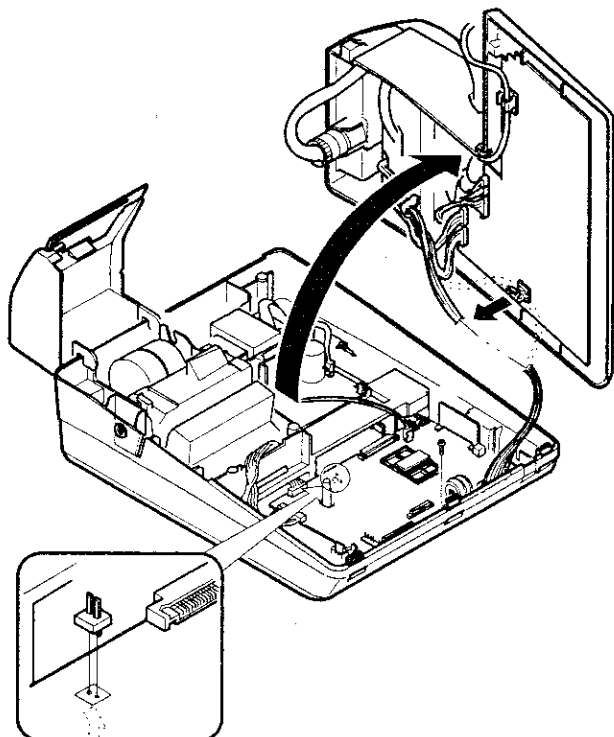


Fig. 1

#### 5) Installing the sensor unit. (Fig. 2)

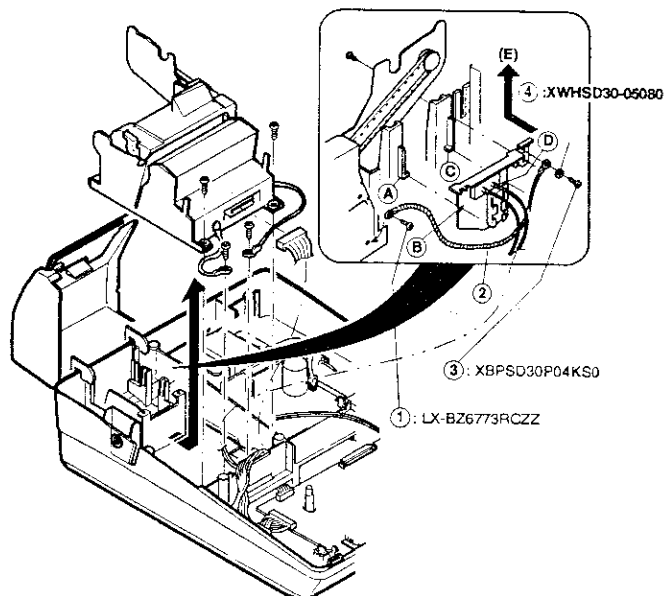


Fig. 2

Remove the sensor unit adjusting screw.

Fix the ground wire to the sensor unit with a washer (4) and screw (3) (XBPSD30P04KSO). Then attach the sensor as shown below: Match the journal guides (A) and (C) to points (B) and (D) of the sensor unit, and install the sensor unit in the arrow direction (E). Then, secure it with the adjusting screw (3). (LX-BZ6773RCZZ. Self tap screw)

Fix the other end of the grounding wire (2) to the screw (1) hole in the right rear side of the R/J printer. (Fig. 2)

6) Fasten the connector removed at 4) with the connector from the sensor unit.

7) Replace the main PWB and the cabinet.

8) Restoring the data

Load the data saved from the ER-A610 in which the data was saved.

### 3. Operation test

The paper end sensor and the near end sensor are optional units.

#### 1) Key operation

106 → **TL**

#### 2) Functional description

State of the paper end and near end sensor is sensed and displayed.

#### 3) Check the following items:

On and off actions of the paper end and near end sensors are tested and their results are displayed.

ON/OFF check is performed for VDS and NES and the display is checked.

x: State of the RPES sensor

y: State of the JPES sensor

z: State of the NES sensor

Display	X/Y/Z	Description
CDST	O	Validation card top (JOURNAL) not detected
	C	Validation card top (JOURNAL) detected
VDSB	O	Validation card bottom (RECEIPT) not detected
	C	Validation card bottom (RECEIPT) detected
NES	O	Journal side paper roll near end detected.
	C	Journal side paper roll near end not detected.

NOTE: "C" is always displayed when no sensor is used.

#### 4) Test termination

Any key depression causes the test to terminate with the termination message on printout.

1 0 6  
Test termination print

## CHAPTER 12. DRAWER FIXING KIT (DKIT-8633RCZZ)

The drawer fixing kit is used for securing the cash drawer when installing separately from the ECR main unit.

By using two of brackets, the drawer box can be protected from drifting especially when it is filled with coins.

### 1. Parts list

KIT CODE: DKIT-8633RCZZ

No.	Parts code	Description	Price rank	Q'ty
1	LBRC-2321RCZZ	Fixing bracket	AN	2
2	XTPSD40P16000	Tapping screw M4x16	AA	4
3	XBSSD40P16000	Flat head screw M4x16 (For remote drawer)	AA	2
4	XUSSD40P20000	Flat head screw M4x20 (For standard drawer)	AA	2
5	XBPSD40P22000	Screw M4x22	AA	4
6	XNESD40-32000	NUT M4x32	AA	4

### 2. Installation procedure

1) Turn over the drawer bottom side and remove rubber footing at two to locations.

2) Fasten the bracket together with the rubber footing using the pan head screw.

Pay attention for the installing direction of the bracket that the pan head screw can be inserted properly into the bracket.

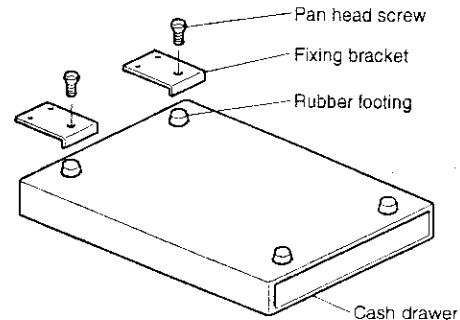


Fig. 1

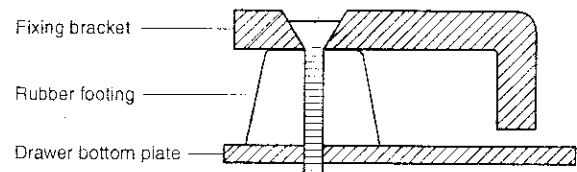


Fig. 2

3) Fastening on the table:

Secure the fixing Bracket using the screw (Fig. 2).

If the thickness of the table is less than 15mm, bore a 4.5mm hole in the table and fasten it with the screw (XBPSD40P22000 - 4pcs.) and nut (XNESD40-32000 - 4pcs.).

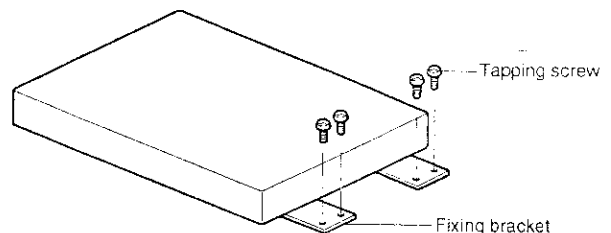


Fig. 2

## CHAPTER 13. PRESETS LOADER

### 1. Outline

The presets loader option consists of the following devices:

- ER-A5CB SIO interface cable, for machine to machine only.
- ER-02FD 3.5-inch floppy disk unit (QCNW-7578RCZZ SIO interface cable included). Must be ordered from the parts DEPT.

The TTL-level SIO transfer function is standard for the ER-A610 cash register.

The ER-A610 can achieve standard (TTL-level) SIO data exchange with another ER-A610 through the ER-A5CB or the ER-02FD through QCNW-7578RCZZ.

This enables saving and loading of various data.

For the ER-02FD this section only describes the method of data down-loading for memory saving to be performed in servicing.

NOTE: The ER-02FD must be set to the ER-01FD mode.

### 2. Installation procedure

- Installation of the ER-A5CB SIO interface cable (for data transfer between ER-A610s)

- 1) Open the SIO connector cover on the right side of the ER-A610 by opening and connect the one end of the ER-A5CB to the SIO connector.
- 2) Connector the other end of the cable to the SIO connector of the mating cash register.

Note: After the cable is disconnected from the SIO connector, be sure to close the cover to protect the connector.

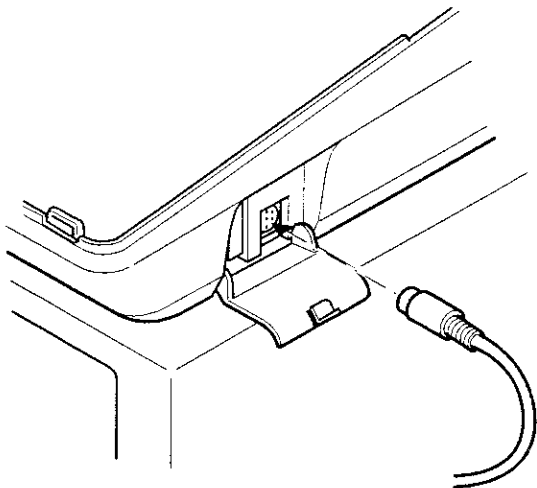


Fig. 1

Installation of the QCNW-7578RCZZ (SIO interface cable) and ER-02FD 3.5-inch floppy disk unit (for data transfer between the ER-A610 and the ER-02FD)

- 1) Connect the QCNW-7578RCZZ to the SIO connector on the right side of the ER-A610 and to the serial interface connector ④ of the ER-02FD
  - 2) Open the cover on the right side of the ER-02FD and perform its programming.
- Description of the indicators on the ER-02FD

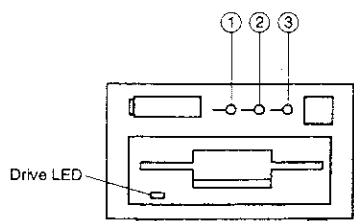


Fig. 2

	LED	State of LED	State of the floppy disk drive
①	Power LED	The LED lights up.	The power of the ER-02FD is on.
	Drive LED	The LED lights up.	The drive is in operation. (The drive is reading, writing, or formatting.)
		The LED lights up.	A read/write error has occurred.
②	FD LED	The LED blinks	<ul style="list-style-type: none"> <li>• The format type of the floppy disk set in the drive is different from the programmed one.</li> <li>• The disk set in the drive is protected against writing.</li> </ul> <p>In the ER-02FD mode only</p> <ul style="list-style-type: none"> <li>• There is no files to read.</li> <li>• A specified file to be read or written does not exist.</li> <li>• The volume of data stored in a file to be written is greater than the remaining storage capacity of the floppy disk.</li> <li>• The attribute of a file to be written or deleted is "Read only" (PC-DOS and MS-DOS only).</li> </ul>
③	TR LED	The LED lights up.	<ul style="list-style-type: none"> <li>• The time is over.</li> <li>• The power of the ECR is off.</li> <li>• The cable is not connected.</li> <li>• Anything unusual has occurred in the communication line.</li> </ul>
		The LED blinks (Blinking 1)	The transmission parameters of the ER-02FD and the ECR are incorrect.
		The LED blinks (Blinking 2)	The TR LED blinks each time one frame of data (128 bytes) is outputted to the communication line.
② and ③	FD and TR LEDs	These LEDs light up together.	The program does not function correctly when the power is turned on. (ROM check error)
		These LEDs blink together.	NO floppy disk is present in the drive.
		These LEDs blink alternately.	The ER-02FD is waiting for the SEND key to be operated.

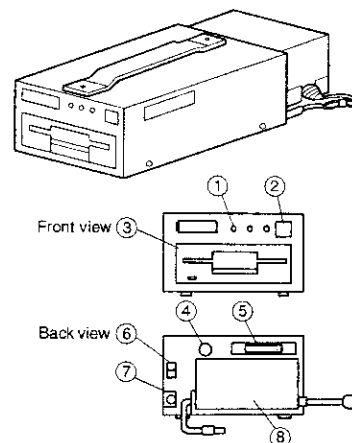


Fig. 3 ER-02FD

- ① POWER LED  
ON when the ER-02FD power is on.
- ② SEND key  
Used to start data transfer between the ER-02FD and the ECR.
- ③ 3.5" FD
- ④ Serial interface connector (TTL level)

- ⑤ Serial interface connector (RS232 level)
- ⑥ POWER switch
- ⑦ AC adapter jack
- ⑧ AC adapter

### 3. Operation test

- 1) Key operation  
117 → [TL]
- 2) Functional description  
The following two kinds of loopback tests are carried out using the special service tool (UKOG-6704RCZZ) to check the trans and receive data, ready, and not ready signals.  
Test 1: Checks ER-DR, RS-CD and RR-CS  
Test 2: Checks TDX-RDX
- 3) Check the following items:  
Successful test results must be checked on the display and the termination message print.
- 4) Test termination

117	EX ----	117	
-----	---------	-----	--

Termination print

- X = 1 : ER-DR error  
 2 : Send and receive data unmatched error  
 3 : Hardware error  
 4 : P-OFF  
 5 : Timer overflow error

### 4. Operation

- 1) ER-02FD and ER-A610
  - ① To send data from the ER-A610 to the ER-02FD:  
Enter : 996 → [•] → [⊗] → [TL]
  - ② To receive data from the ER-02FD to the ER-A610:  
Enter : 998 → [•] → [⊗] → [TL] and depress the [SEND] button on the ER-02FD
- 2) ER-A610's
  - ① On the receiving ER-A610:  
Enter : 998 → [•] → [⊗] → [TL]
  - ② On the transmitting ER-A610:  
Enter : 996 → [•] → [⊗] → [TL]

NOTE: Be sure to start the receiving machine first.